

Picture by Bud Lukay
Road from Cokro to
Highway #40



Picture taken by Bud Lufey near Elko - Nev.



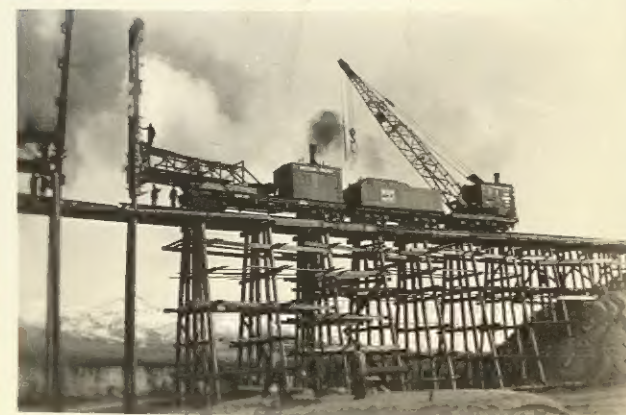
Repairing Wash-Out on Western Pacific near Doyle 1943

Length 365 ft Height 50 ft Piles 90 ft

Long Span
W.P. Driver & Hoist
Carl Bly Foreman

Short Span
S.P. Driver
A. McDermitt Foreman

Note- No Angle Sway Braces on W.P. Const



Harney Channel July 1943



Slide on Western Pacific Feather River Canyon



When The Scenery Moves.

2779.

Down the Canyon

Slide on Western Pacific
Feather River Canyon



Bridge #12 Truckee River washed out February 2nd 1962 in the Truckee River Canyon about 23 miles east of Reno. Later channel change was made and bridge was turned over to County to be used to replace old highway bridge. Bridge was loaded on two flat cars and hauled to nearest point to new location available



#12 Bridge Truckee Washed out 2/2-62



Temporary Bridge in foreground

RIGHT: A 90-ton crane (foreground) hooks on to SP bridge and prepares to lift it from abutments weakened by flood. Another crane is hooked to the other end of bridge.



BELOW: Bridge is slowly lowered on to flat cars.



■ Usually, it's the other way around — the train rides on the bridge — but in this case a 256,770-pound steel railroad bridge traveled more than half a mile aboard a Southern Pacific train.

The unique move took place in April about 23 miles east of Reno, in the Truckee River Canyon.

Back in February, heavy floods on the Truckee washed out the

SP Bridge

Painted Rock Bridge, a wooden structure providing a highway crossing for five ranches in Storey County, Nevada. Ranchers were forced to detour many miles in order to cross the river. Several previous highway bridges at the same location had washed out in earlier floods, causing major inconvenience to residents in the area.

During the same flood, a nearby Southern Pacific bridge over the Truckee was weakened. The railroad solved the problem by purchasing enough land to re-route the river, eliminating the need for two bridges, including the weakened one. SP excavated a new river channel about half a mile long, bypassing the two bridges.

When Washoe County Road Supervisor Bill Daniels learned that the bridges were no longer needed by the railroad, he immediately sought to acquire one of the spans

to replace the Painted Rock Bridge. SP offered to make one available for a token price, provided arrangements could be made to move it to the new location.

Daniels carried out the necessary liaison work between Washoe and Storey Counties and cleared the way for the two counties to cooperate in the cost of hiring crane companies to lift the bridge from its footings, set it aboard three SP flat cars, and lift it off again at the new site.

Paralleling the span to be moved was a temporary bridge, installed

Photographs used in connection with this story are by courtesy of Charles Dascomb of the Washoe County Highway Department.

two 90-ton capacity cranes — one at each end — were hooked on. Hoisting together, the cranes slowly lifted the huge structure clear of its supporting abutments and swung it over the flat cars.

The SP bridge is 30 feet high and 150 feet long and therefore had to be balanced precisely on the flat cars to make certain that it would stay put on the half-mile journey to its new location. The springs were removed from the flat cars to eliminate horizontal sway.

When the structure was secured to the flat cars, two SP diesel units were carefully coupled to the cars, and the strange cargo slowly moved down the Truckee canyon to a spot

Boards SP Train

by the railroad for use while the river was being re-routed. This served as a loading platform. The three flat cars were moved into position alongside the steel bridge, and



New Channel April 62



Testing Bridge April 62



Channel Change

Washout

Between Tracy & Lathrop

1950





WASH OUTS
San Joaquin River
Western Division
December 1950



Wash-out Western Division
December 12th 1950





WASH OUTS ALONG
SAN JUAQUIN RIVER
WESTERN DIVISION
DECEMBER 1950



Slide Delays Espee Trains

An earth slide at Wicopee, 20 miles southwest of Oakridge in the Cascade mountains Monday night, upset the Christmas schedule of the Southern Pacific railroad and caused cancellation of the Christmas runs of its Shasta Daylight in both directions between Oregon and California.

The 15-foot-deep slide was cleared Tuesday about 10:30 a. m. and company officials announced the afternoon trains would go out on schedule. A tourist special was scheduled to leave at 4:50 p. m. to make up for the Tuesday morning

streamline run which was canceled.

The trains en route were detoured over the old Siskiyou route. Monday's daylight train from Portland into Oakland was seven hours late as was the Cascade overnight streamliner.

The Shasta from Oakland, scheduled to arrive in Portland Monday night, arrived early Tuesday afternoon. The Cascade was expected at 7 p. m. from Oakland, 9½ hours late.

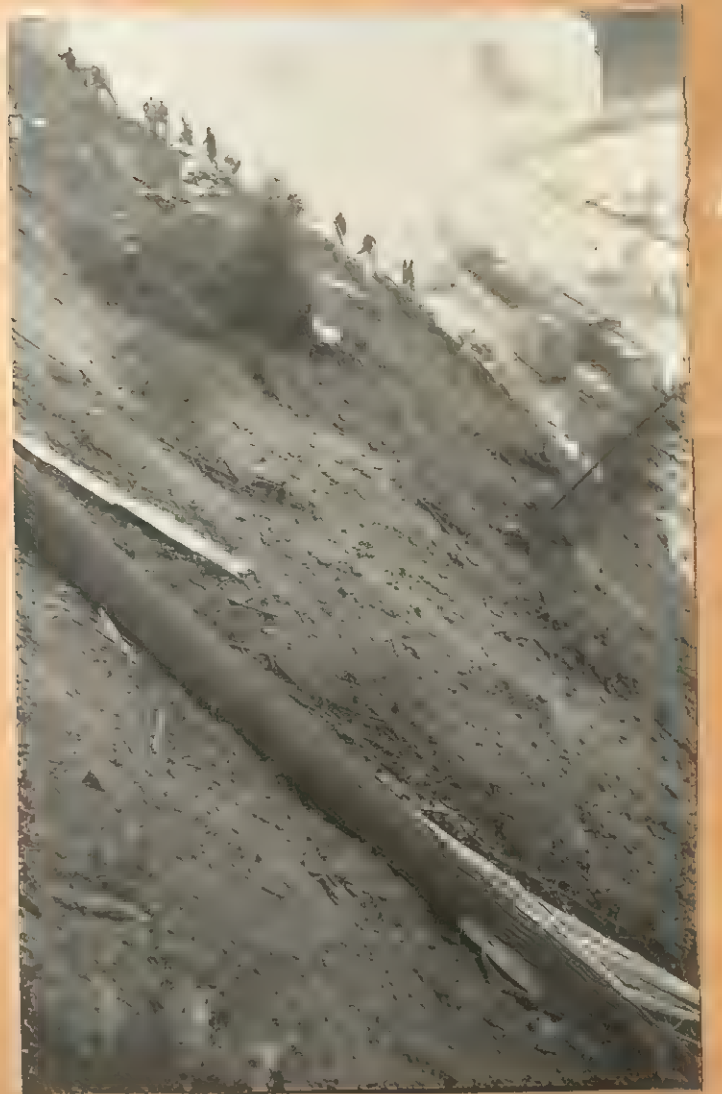
Cascade Slide Bowls SP Freight Train Off Tracks



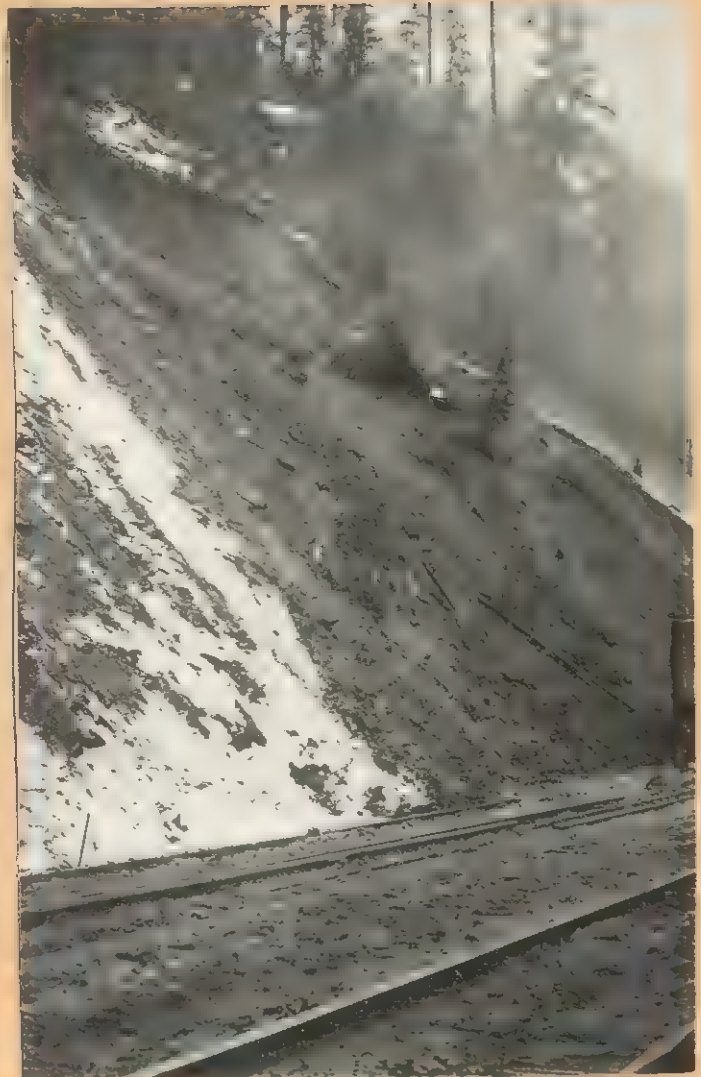
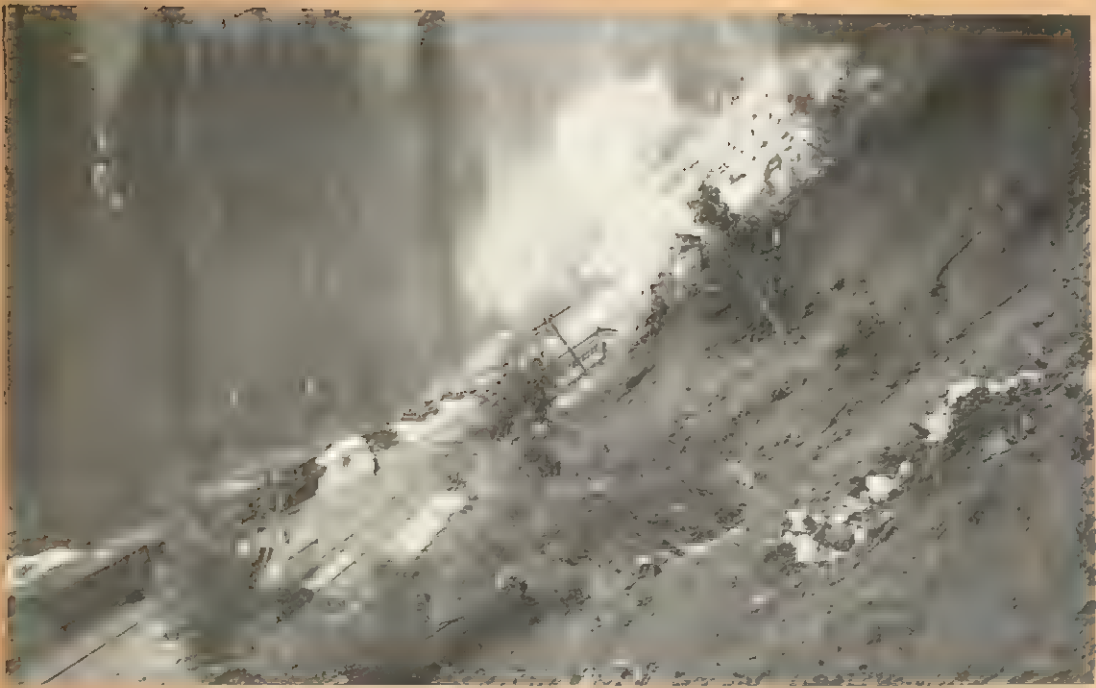
One of two slides in the Cascades Sunday knocked six cars of a Southern Pacific freight off the track in the Willamette

pass. Two were overturned blocking main-line traffic for 12 hours. Scene of derailment was near Wicopee. (J. Gekas photo)

WICOPE SLIDE
December 1951
Portland Division



WICOPE SLIDE
Portland Division
December 1951



Mapleton Slide
Coos Bay



In September of 1938 The Southern Pacific Lines near Heene California on San Joaquin Division was struck by a terrific Flash Flood that did a tremendous amount of damage. At one point a Santa Fe engine was covered so deeply by debris that no signs of engine were visible and it was necessary to use mine detectors to locate engine so that it could be dug out as shown by these pictures



FEDERAL DISASTER LOANS URGED AT STRICKEN BATTLE MOUNTAIN

Federal disaster aid for Battle Mountain residents loomed Monday as receding flood waters blasted out a section of the day as receding flood waters track line as well as dynamiting the rampaging Reese River in its wake \$1,000,000 in damage and caused the death of a man.

The victim of the flood who inundated three-quarters of the community and forced evacuation of two-thirds of its residents was Alfred Casey, 38, manager of the Sierra Pacific Power Co. office in Battle Mountain.

Casey was burned when he accidentally touched a high voltage power line he was trying to disconnect during the height of the flood.

He was brought to Humboldt County General Hospital in Winnemucca by ambulance Tuesday at 2 p.m. and died at 10:10 p.m. despite efforts of doctors to save his life. Casey is survived by his wife, Emilene, and eight children.

As residents started the task of clearing out tons of mud and debris clogging streets at his service station. Every home, U.S. Senator Alan Bible out of business by the flood.

Bible said he was advised that a representative of SBA flew to Battle Mountain from the agency's regional office in Denver and would make an on-the-spot investigation.

If the SBA declares the community is eligible for aid, individuals and businesses could apply for 3 per cent disaster loans, repayable in 20 years. A final determination will be made by the agency Friday.

During the height of the torrential downpour Monday in the Reese River basin above Battle Mountain, a general alarm was issued by upper valley residents that a flood was imminent.

Before adequate preparations could be made to meet the threat, the Reese River — a trickle of a stream—became a monstrous wall of water racing across the flatlands on a mile-wide front.

As Battle Mountain streets became water-clogged with 15 inches of rainfall, a state of emergency was declared and 40 members of Battery "B" of the National Guard in Winnemucca were called into service to help cope with the rising flood threat.

Eight guardsmen from Elko and 14 from Reno joined them. By the time Battery "B" members arrived in Battle Mountain Monday, the entire south end of the community was under water, necessitating the evacuation of the entire Indian colony.

Water backed up and covered more than three miles of U.S. Highway 40, halting all east-west travel. In order to alleviate mounting flood waters covering the community, the National Guard dug trenches under the

Lemaire had high praise for his townspeople and the National Guardsmen.

"Everybody is helping each other," he said. "The morale here is high. We are very appreciative of what the National Guard has done to help us. We have witnessed a wonderful exemplification of America at work to meet disaster."

Red Cross units from Elko and Winnemucca swung into action to assist those driven from their homes while special Civil Defense unit meetings were conducted in both communities in case the disaster spreads.

Meanwhile, ranchers below Battle Mountain and in Humboldt County moved cattle out of the Humboldt River bottom grazing lands as a safety measure and crews were placed on a 24-hour emergency basis to check the river flow at all dam-sites.

Ralph Gamboa, of the district water engineer's office, who earlier had estimated the Humboldt River would reach the

1932 Winnemucca flood proportions of 6,000 second-feet per minute flow, revised the estimate Wednesday.

Gamboa said deep sloughs in the Ellison Ranch and 25 Ranch district had absorbed a huge quantity of excess waters and estimated the flow would be about 3,000 second feet per minute when the peak flow would hit Winnemucca late Friday or Saturday.

Gov. Grant Sawyer, who had declared a state of emergency in Battle Mountain Monday, drove through Winnemucca Tuesday night and made a personal inspection of the area Wednesday.

Special tribute was paid by the governor to members of Battery "B" for their aid in fighting flood conditions before the Guardsmen returned home late Wednesday.

Fifty Indians from the Battle Mountain camp have set up temporary homes in Winnemucca motels until the flood waters subside.

Valley, Nev.
Mar. 25, 1932

Dear Mr. L. A. Williamson:

My photo of, not all 20 have never come back from the developer. So, I am sending a few that I have and two of the boys. I do not know one of my dad at this time. We are trying to find a few old negatives but haven't had much luck to date. I have sent you a few newspapers that will go out today.

The flood in Battle Mtn. was a surprise to the people of Battle Mtn. It was a flood that could have happened any year and Battle Mtn. had been in various position for it since it was first settled. They had a smaller flood in 1910, say a knee. However, this time nature had timed its elements just right as in January 1910, or snow fall. The next day a storm and warm wind broke the snow down to about 9 in. The following two weeks it rained from 20 below to 25 below and froze the ground to a depth of one and one half feet. Suddenly, overnight the weather changed and the thermometer soared to about 30 degrees and it rained steadily for two days. That did it. The entire area south of Battle Mtn. for 40 miles encompassing Antelope Valley and about 10 miles to 15 miles wide became a running torrent of muddy water and poured into Reese River, the draining outlet to the Humboldt River. Battle Mtn. was in the road and was thoroughly flooded to a depth of four to five feet.

Actually, the highway held its back first and it is believed that the Railroad was secondly in holding the flood back. However, the town people were in a panic and the bitterness is enough to make one keep the flood in the town. I am very happy that we are in Valley, although, I had the same in the flood and my house was almost destroyed. I had two and a half feet of water around it and the basement was full. Damage was not too great for him. Now, some of the citizens are asking for \$15,000,000. Actually, they should forget the entire episode and leave things as they were. They are afraid that the flood is a calamity, but they have a few more to come. We have where the flood is still a problem.

Lander Residents Sue S. P. Following Flood

Nevada State Journal

Reno's Morning And Sunday Newspaper

92nd Year—No. 101

Wednesday, March 21, 1962

10c Daily—15c Sunday

\$3 Million Pay Asked

A \$3 million damage suit against the Southern Pacific Railroad Co. was filed in Washoe District Court yesterday by citizens of Battle Mountain for flood damage to the community Feb. 11-13 when waters from the Reese River were trapped by the S.P. Railroad bed in the city.

The "class action" complaint was filed by a cross section of Battle Mountain residents representing persons and concerns affected by the flood, which inundated three-fourths of the city.

The S.P. and its agents, Carl E. Francis, Fred C. Rice and Oliver A. Thomas, are named as defendants in the action filed by attorneys Gordon W. Rice and Ernest S. Brown, both of Reno, and George G. Holden of Battle Mountain.

1st Cause of Action

In the first cause of action, the complaint seeks \$2 million general damages "due to the unskilled construction" of the S.P. roadbed through the city without, it charges, provisions for sluiceways or culverts to permit water to flow through the town to the Humboldt River.

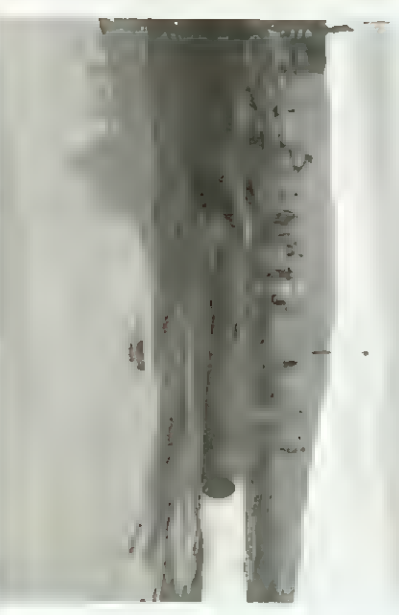
Because of this oversight, it charges, waters of the Reese River covered a large part of the town and 1,000 homes with a foot to 18 inches of water above the ground level.

In a second cause of action, the complaint asks \$1 million for general damages because of fire hazard created by S.P. agents in their own government, preventing workers from cutting a bypass will be given back through the roadbed to drain the town of the Pacific island.

President Eases Okinawa Controls

WASHINGTON (UPI)—President Kennedy gave Okinawa a new government, allegedly action by S.P. agents in their own government, preventing workers from cutting a bypass will be given back through the roadbed to drain the town of the Pacific island.

Point West of
Station where
Track was
dismantled





High Water at Battle Mountain
February 1962

Humboldt Bulletin

HUMBOLDT COUNTY'S HOME-OWNED NEWSPAPER

VOLUME 1, NUMBER 23

WINNEMUCCA NEVADA, THURSDAY, FEBRUARY 15, 1962

PRICE: 10 CENTS



Winnemucca

THIS PHOTO of the Battle Mountain flood, taken exclusively by Saxman of Winnemucca, depicts Second Street, looking east. S



Bottle Mountain 1910

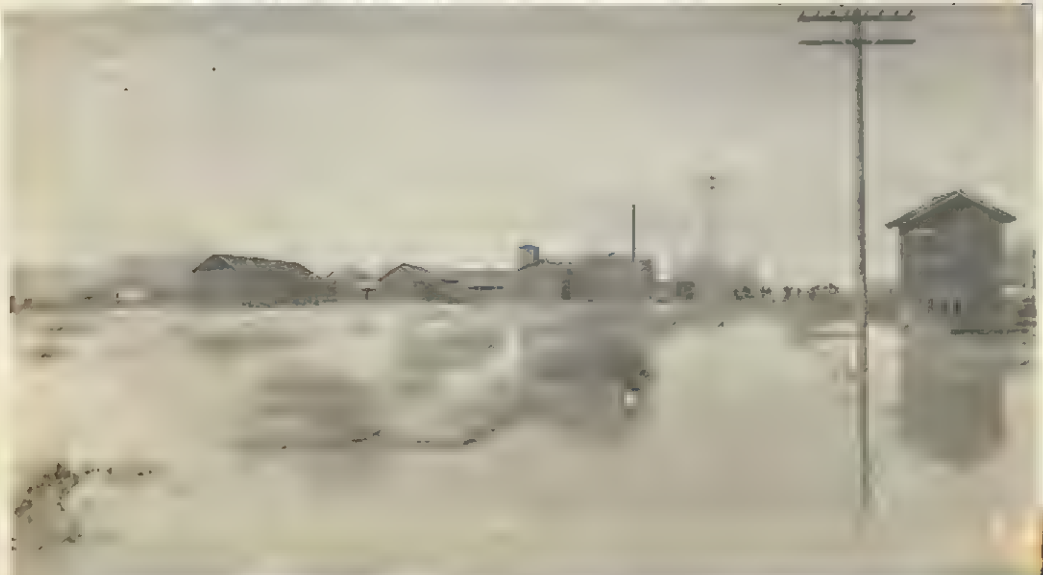


Bottle Mountain 1910

Bottle Mountain 1910

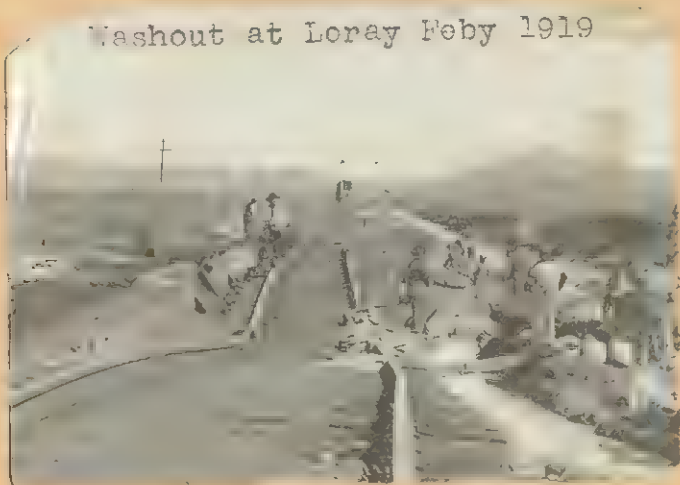


Bottle Mountain 1910





Unloading Rip Rap on bridge west of Loray 1914



Washout at Loray Feby 1919



HUMBOLDT RIVER FLOOD

March 1910

This flood put every bridge over the Humboldt River out of service down to pile trestle near Lovelock which was saved although large jam of debris covered stream for several hundred feet up stream. Trains were detoured via Pocatello for some considerable time

Big Humboldt Flood of 1910 Is Told in Story From Files

Editor's Note: For a basis of comparison with the current flood stages of the Humboldt River, and because of the great interest in the flood of 1910 the following story, taken from the files of the Elko Daily Free Press of Friday, March 4, 1910 describing the big flood of that time, is here reprinted.

This morning those living on River street to the east of the Western Pacific depot found it necessary to make a quick move to higher ground. The water is flowing swiftly along River Street between the Dotta lumber yard and the Palace Livery corral.

From the Western Pacific freight depot down to James Russell's home everything is covered with water between the tracks and the river. The high ground upon which is located the home of Mr. Russell and the three new houses built by him this spring, is over a foot above the present water level. These houses are occupied by Mortan, Williams and Faddis, employees of the Western Pacific. South of them are three white houses, one of which is occupied by a Western Pacific boiler repairer. Water is nearly to the floor of these places. From this high ground down to the county road it is all water.

The Hot Springs bridge is apparently safe though the approach on this side is in danger of being washed out. Before noon the water had risen enough to begin to cover the road on this side of the bridge. A rise of a foot will mean a current across this spot and then will come the washing out of the dirt.

About midnight last night a stub train on the Southern Pacific reached Elko from Cobre. This morning a train was sent from Carlin east. At that time the Limited of Monday night that was turned at Elko and started east was a Wells. It had been the intent to send this train to Cobre and then over the Nevada Northern to Shafter and thence to Salt Lake City. The train from Cobre to Ely last night over the Nevada Northern found the track so soft that it was unable to make Shafter, so the Limited is being held await-

ing the completion of the work at Loray. The expectation is that trains will be able to pass the fill at Loray early this afternoon. This will give Elko a chance to receive eastern mail.

The Southern Pacific detoured five trains yesterday sending them west by Pocatello. They will send traffic going west of Carlin to the coast by northern route and then east to Reno. The trains west of there are this morning stalled at Battle Mountain and west of there are this morning returning to the coast.

Assistant Superintendent Campbell was a passenger on this morning's local freight going east just ahead of No. 4. He said that the amount of damage done to the Southern Pacific was small when one considers the volume of water they had been called upon to handle, that so far there had been no fatality. Stub trains will handle the local business until the damaged track between Palisade and Battle Mountain had been repaired.

Reports from the west show that the Southern Pacific has suffered severely from Palisade to Battle Mountain. Many culverts are completely gone and most of the approaches to the bridges are so badly damaged that it will be necessary to use the pile driver to prepare a new approach. From Sacramento has been ordered pile drivers and material and the work is being pushed rapidly from that end. Work from this end will commence just as soon as the machinery and material can be brought from Ogden.

The banks of the river south of the upper bridge is caving, big chunks falling making it very dangerous to stand on the west bank of the stream. The Troy Laundry is right on the bank of the stream and is in danger of being caved into the Humboldt.

At beowawe the water is reported as four feet deep in the Mercantile company store.

Mail was sent to Halleck, Deeth and Wells this morning on Southern Pacific No. 4. The morning agent, C. A. Brown was uncertain if the Southern Pacific would carry it, but Asst. Supt. B. A. Campbell heard the conversation and informed him that it would be carried. Even then it would not have left here if Postmaster Doughty had not carried the sacks across the street and put them on board for Agent Brown. Our neighbors are indebted to Mr. Doughty's thoughtfulness for the mail of this morning.



Palisade bridge under water 1910



Palisade bridge 1910
X March 5th 1910



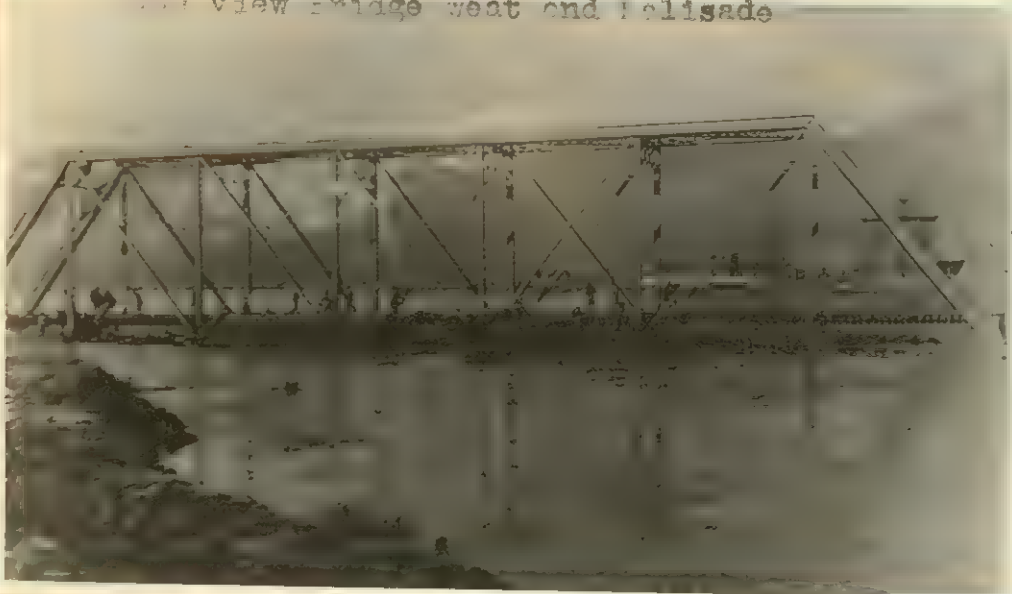
Americans

Repulse New Jap Attacks

Bridge west end Palisade Yard



Wide view bridge west end Palisade



Bridge west end Palisade



Bridge near Gerald

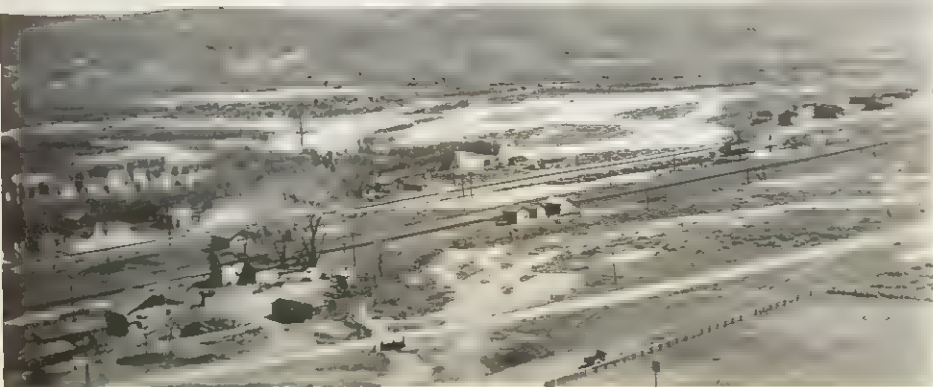


High Water M.P. 249 near Vista
East of Sparks
November 22nd 1950



High Water M.P. 249 near Vista

1941



Blowing Rock, N.C. 1941



Palisade
 101-46 14
 April 1942



Palisade 1942



#3 Wagon Bridge Palisade
 where Palisade Gauge is located



#6 Lower end movement
 taken from north bank



#1 Light Engine on Western Pacific
 Picture taken looking west with N.P.



acks Portend Axis Spring Offen

HUMBOLDT REACHES FLOOD

and walls, dashing out with rifles and bayonets

Humboldt Star 3:17-43

Water Runs Into Elko Street This Morning

Dam Blasted To Relieve Situation

The Humboldt river, for the second time in 32 years, reached flood stage here today.

Water started running into second street this morning and residents along the river worked early this morning building dikes. The city workmen were brought into action this morning and dirt was being trucked to the area in order to keep the water back.

Frank Batchelder, superintendent of streets, was called last night, but could do little during the dark. One dam below Elko was blasted yesterday and this relieved the condition in the south west section of the city, where it was becoming serious.

Water is backing up against the cabins on the Robert Caudill property at Fifth street.

While the river was not badly out of control here this morning it was believed possible that the water would continue to rise and that it might cause considerable damage.

Sheriff C. A. Harper was watching the river closely this morning and said that a marker showed him that the river had risen more than six inches since yesterday.

The entire country surrounding the river is water soaked and the water table is higher now than it has been for years. This makes the runoff from the surrounding hills more dangerous as the ground is not absorbing the water.

RECALL 1910 FLOOD

Residents here recalled today that there was considerable ice in the river during the 1910 flood, which occurred a month earlier, and which helped in backing up the water, making conditions serious then. It is pointed out that the river channel is freer now than it was at that time and that it can carry more water. There was a dam at Fifth street at the time, but it has since been cleared away, allowing the water freer passage there.

In 1910 many of the residents in the river district brought their valuables to people residing on higher ground.

Expect River Here to Reach Flood Stage

The Humboldt river in this vicinity is expected to reach a new high within a few days with flood conditions possibly worse than they were a year ago. Battle Mountain ranchers along the Humboldt today are busy getting their cattle out of the fields and low lands due to the sudden rise of the river which within the past 24 hours is reported to be overflowing its banks and rising steadily.

ELKO FLOODED

Elko residents living in the southern part of the city evacuated their homes yesterday when the highest water on record flooded that vicinity. Maggie creek broke loose Tuesday night and washed out the Southern Pacific main line at the east Tenth street crossing in Carlin on the Southern Pacific main line while other parts of the town are also flooded. The track is reported to be passable at this time although the south icehouse tuck is out.

TRAINS DETOURED

The Western Pacific railroad was detouring trains over the Southern Pacific yesterday at Elbur and Rendon, east of Elko, and water was over the Southern Pacific tracks at Deeth Creek at Campus, east of Mountain, was also reported to be overflowing.

The flood conditions last weekend with snow at Wells and Elko. According to reports from Elko, the highway department with powder in case the temporary bridge on route 40 gets high. The North Fork bridge was out last month when flood conditions this year were that area, hauling high traffic for over a week.

River Surges To Top Peak For 32 Years

High Flow Through Winnemucca Is Expected 10 Days

Northern Nevada's flooding Humboldt river today was sending the greatest flow through Winnemucca since the 1910 flood. Archie Millar, supervising water commissioner, said at Winnemucca in announcing the river's current peak stage should continue for the next 10 days.

1,600 FEET PER SECOND

Although no definite check on the flow through Winnemucca could be obtained today since a gauge east of here was flooded, the supervising Humboldt river water commissioner indicated 1,600 cubic feet per second was the flow through this area today—its highest mark in 32 years. The muddy river has gone higher during the past three days with the waters beginning to rise steadily last Saturday.

Millar indicated he believed there was no danger to Winnemucca homes along the river unless levees or obstructions along the river east of here give way, sending a sudden influx of water downstream. If there is a marked increase in the flow, it will be for only a short period, according to Millar.

FLOW DOWN

The usually sluggish river, which has coursed over its banks all along its 1,000 mile route from Pershing county's Rye Patch dam to Wells, has dropped considerably in the Elko and Palisade section. The flow at Elko, which forced some 20 families to evacuate their flooded homes two weeks ago, has dropped, according to Millar. The peak flow in the current runoff at Palisade was 4,500 cubic feet per second while this week it was running at around 2,400 feet. The 2,400-foot flow today is the same as the peak of last year. The river has dropped two feet at Palisade.

Water Measurements Humboldt Are Released

Measurements of the Humboldt river yesterday at Comus, 29 miles above Winnemucca, showed flood waters have risen to within an inch of last year's 26-year record mark, Humboldt Water Commissioner Archie Millar said this afternoon.

Estimates of how long the river flood stage will last and whether it will recede before topping last year's record flow by a considerable margin were impossible here today.

CUBIC MEASUREMENTS

Yesterday 1,500 cubic feet of water per second was entering the Rye Patch reservoir, Millar said. So far this month the greatest flow of cubic feet of water per second registered at Palisade as 3,038 on March 12, when the gauge height rose to 7.12 feet. However Palisade reached 4,505 cubic feet per second on February 26, its heaviest flow this year. Last year's record flow is said to have been around the 6,000 mark at Palisade.

Commissioner Millar explained that the river in this area now is swollen additionally by water entering the Humboldt river below the Palisade gauge. Pine, Rock and Coyote creeks and Reese River he said are discharging at least a daily average of 750 cubic feet per second.

Fluctuations in the river's flow

—Cont'd on Page 2, Col. 5

HUMBOLDT WATER MEASUREMENTS

—Cont'd from Page 1
registered at Palisade will pass on downstream to this locality within a few days. Today the water commissioner released the following report of gauge registrations at Palisade since the first of this month:

March	G.H.	C.F.S.
1	6.64	2,606
2	6.16	2,178
3	6.10	2,130
4	5.55	1,690
5	5.96	2,018
6	5.68	1,794
7	5.33	1,514
8	5.38	1,554
9	6.23	2,255
10	5.84	1,922
11	5.69	1,802
12	7.12	3,038
13	6.86	2,804
14	6.16	2,178
15	6.00	2,130



Western Pacific Bridge at
Harney Channel Change 2/27-43
White mark on bridge is high water mark



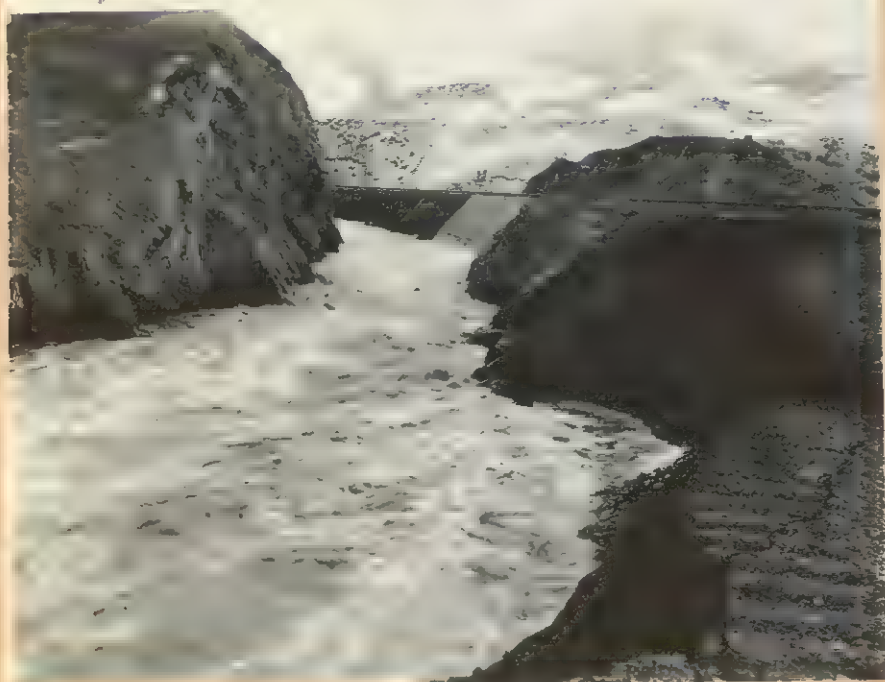
Western Pacific Bridge near Elko 2/27-43
Stick indicates High Water Mark of 2/27-43



Washed out Culvert on Western Pacific
near Dunphy Feb 27th 1943



Harney Channel 2/27-43
showing slide in foreground



Harney Channel 2/27-43

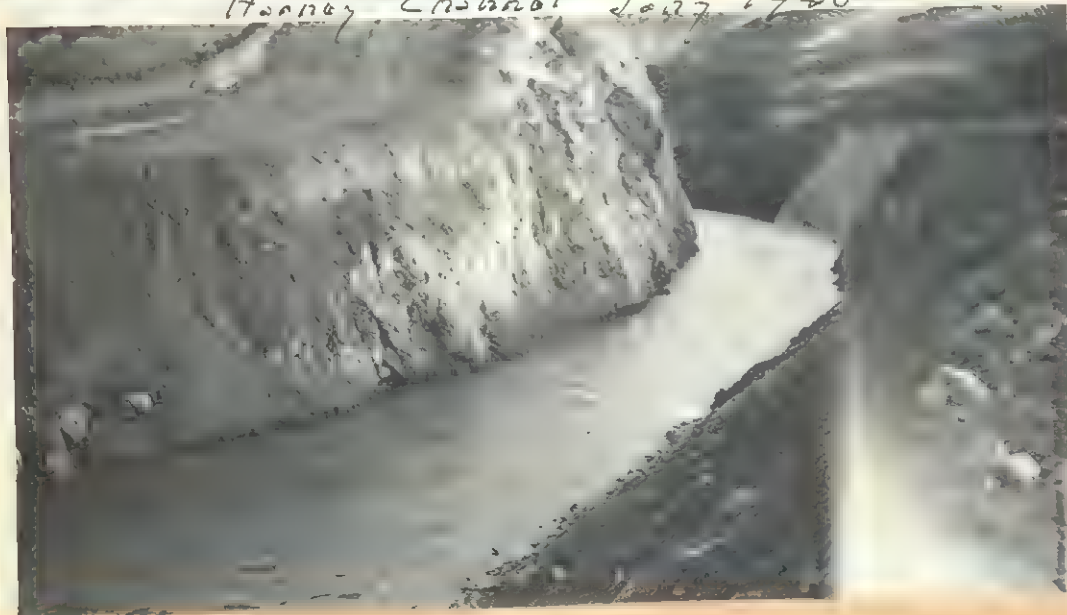


In February 1943 very heavy run-off on Humboldt River endangered many Bridges across that stream. New Channel at Harney proved to be too narrow as it backed water up until it was a foot high on steel girder on Western Pacific Bridge (Channel was widened 10 foot following summer) I met W.P. engineering officers Philips, Chief Engineer, and Hollenbeck, Division Engr, checking over also looked over concrete slab culvert washed out near Dunphy with them. S.P. was fortunate that none of our structures were washed out.

Horney Channel July 1943



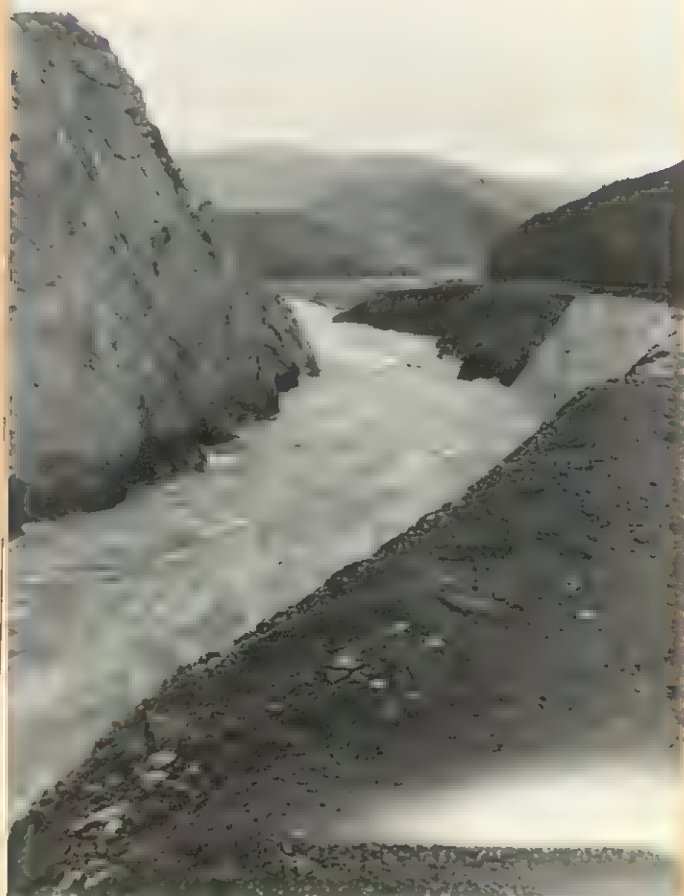
Horney Channel July 1943



Horney Channel
July 1943



Horney Channel 2/27-43





Portion of the new track alignment at Harney, Nev., which involved the elimination of two bridges and a change in the channel of the Humboldt River. Steam shovel on right is shown gouging out the river's new channel where first water was turned through on Dec. 4.

Tracks and River Moved at Harney

A NEW line for the railroad, a new channel for the world's crookedest river—the Humboldt, and the elimination of two bridges, were the main objectives in a big construction job recently completed at Harney, Nev., on the Salt Lake Division. The project was larger than those usually programmed by a division with exclusive use of Company equipment and forces.

The line change, on a .3% grade, involved the moving of 3600 feet of track a maximum distance of 32 feet, and construction of two 30-foot fills. The two bridges were eliminated.

The new 1260-foot channel shortens the river by 800 feet and was constructed on a broken grade so as to provide maximum velocity at the channel throat.

The channel grade is approximately 28 feet below the sub-grade of the track, is 25 to 28 feet wide, and is designed to carry 15,000 second feet of water. Channel excavation required movement of large amount of rock, maximum excavation depth on hill slope being 89 feet.

During construction of the new railroad grade and river channel, the normally small flow of water was diverted through a wooden box beneath one bridge and a four-foot pipe culvert under the other bridge, the wooden culvert being used temporarily as an emergency outlet and later filled with rock.

The 44 men employed on the job were housed and fed at a comfortable camp provided by Threlkeld Commissary Co. Aside from the sleeping quarters, the

camp included a large mess hall, kitchen, shower house with hot and cold water.

Following general plans outlined by Chief Engineer W. H. Kirkbride, the channel change was surveyed in August by a party under supervision of Glen Maw with Instrumentman E. P. Soderholm and B. R. Tomlinson and Max Daley as rodmen. Foreman D. W. Jenkins began erecting the camp on Sept. 9. At same time equipment was unloaded and powder houses erected under direction of Dan Higgins, with Maw assuming direct supervision of these activities as general foreman. The whole project began to move rapidly, with T. Caraway operating a $\frac{3}{4}$ -yard shovel, O. J. Bodie and G. Butler handling the bulldozer. On Sept. 16 P. O. Lakkin and J. O. Boardman began operating a two-yard shovel, and by Sept. 23 all equipment, including seven trucks, had been unloaded and serviced, and work was on double shift.

With Sup't L. P. Hopkins, Gen'l Track Inspector W. F. Monohan, Division Engineers Otis Weeks and F. A. Feikert on the job, the major track shift was made on Oct. 29 and Nov. 1. All available equipment was used to make this throw in the shortest possible time. From start to finish it required only five hours detouring of trains against current of traffic. Final polish was put on the track alignment by an extra gang under Foreman J. Reedy, aided by section workers from Harney, Palisade and Carlin, working under supervision of Roadmaster T. L. Williamson. Water was turned through the channel Dec. 4.

The project required 73 working days with approximately 3150 man-days. Its rapid completion is a tribute to the close cooperation of all departments concerned.



High Water on Humboldt River 1942
at point where line change made after
Streamliner derailment New Channel too narrow
and backed water up until about a foot deep
on Western Pacific bridge. Channel widened
after water subsided.



Bridge under construction on the Colorado River
 April 1942



Bridge #14
 April 1942



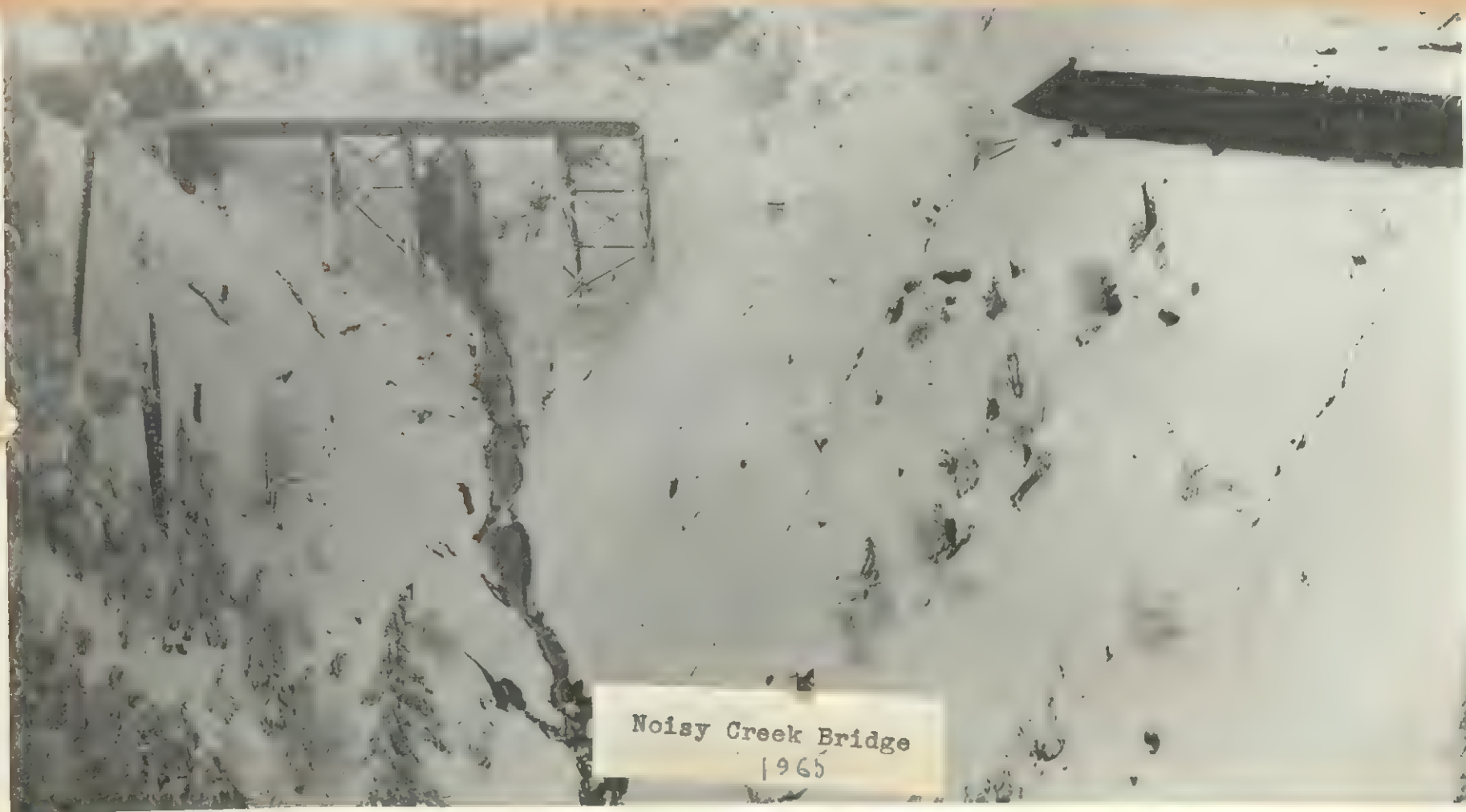


Highlighting of the ...





Damage to Salt Creek Bridge
1965

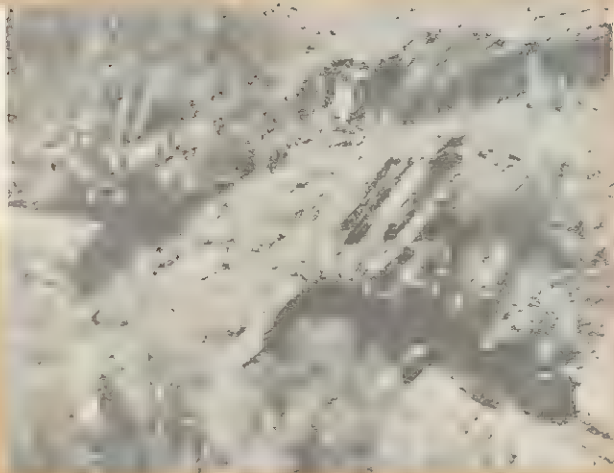


Noisy Creek Bridge
1965



Salmon Creek Slide.

RIGHT: Slide at Salmon Creek, near Oakridge, was about 700 feet long and 60 feet deep over the track. Six heavy bulldozers worked around-the-clock for 9 days to clear it away.





Looking down river from campsite
about 1/2 mile from mouth
of Lake Superior

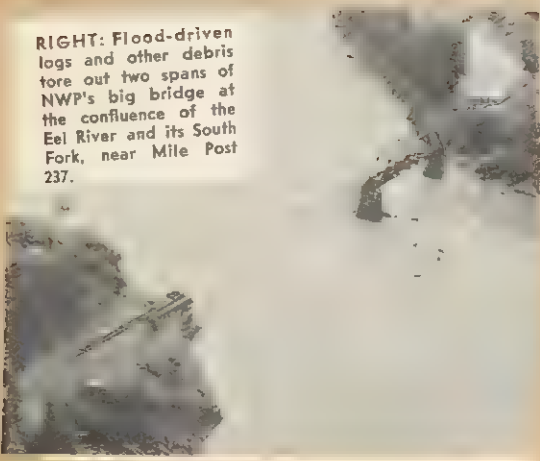


Northwestern Pacific January 1937

Looking north from N.W.P. work



RIGHT: Flood-driven logs and other debris tore out two spans of NWP's big bridge at the confluence of the Eel River and its South Fork, near Mile Post 237.



ABOVE, H. D. Gard, M-K project manager on N.W.P. work, inspects debris-med bridge span destroyed by Eel;

Work on North- Western Pacific
1965



ABOVE. ~~imploring temporary trestle (left) at level far below water-swept~~
~~debris. M-K men restore section of South Fork bridge on Northwestern Pa-~~
~~cific Railroad which lost three major bridges and 100 miles of track in one~~
~~of the worst floods in Eel River's history. BELOW. typical grade damage.~~





HIGH WATER FLOODING
GUERNEVILLE
ANDENRUP

Service Restored For Holidays After Record-Smashing Storms

**Cascade, Overland, San Joaquin and Coast Lines
All Hard Hit; N.W.P. Still Closed**

OUR Cascade, Overland, San Joaquin and Coast routes were seriously affected by the drenching rain and tearing windstorms which swept in from the Pacific in attacks on Oregon and northern California before Christmas.

Thanks to day-and-night work to restore damaged track—and to reroutings where necessary—most SP passenger-temporarily halted by slides or floods were moved on to destinations before the holidays. Freight service generally was again returned to normal. Exception was the Northwestern Pacific in the rugged canyon of the Eel River, where several towns were destroyed as the swollen river went wild. When this issue of the *Bulletin* went to press the NWP was still closed, faced by the final phases of the greatest clean-up job in its history.

Our storm costs may exceed \$5 million.

Widespread Damage

Early Thursday, December 22, our tracks in the Cascade Mountains were flooded at several points, and slides undercut track to depth of 25 feet at two locations near Cruzatte, stranding part of a freight train between slides to complicate repair work.

Next morning in the Sierra Nevada Mountains near Emigrant Gap a slide 100 feet wide and 15 feet deep fell on the double track. Men and equipment soon cleared away the mud and rocks, but the route was closed again by a washout under double track near Midas, cutting to depths as great as 50 feet.

Meanwhile the Pajaro River between Gilroy and Salinas was three feet deep

over the track at one point. A washout near Tulare cut the San Joaquin Line. Branch and secondary lines in both California and Oregon generally were badly damaged.

Service Disrupted

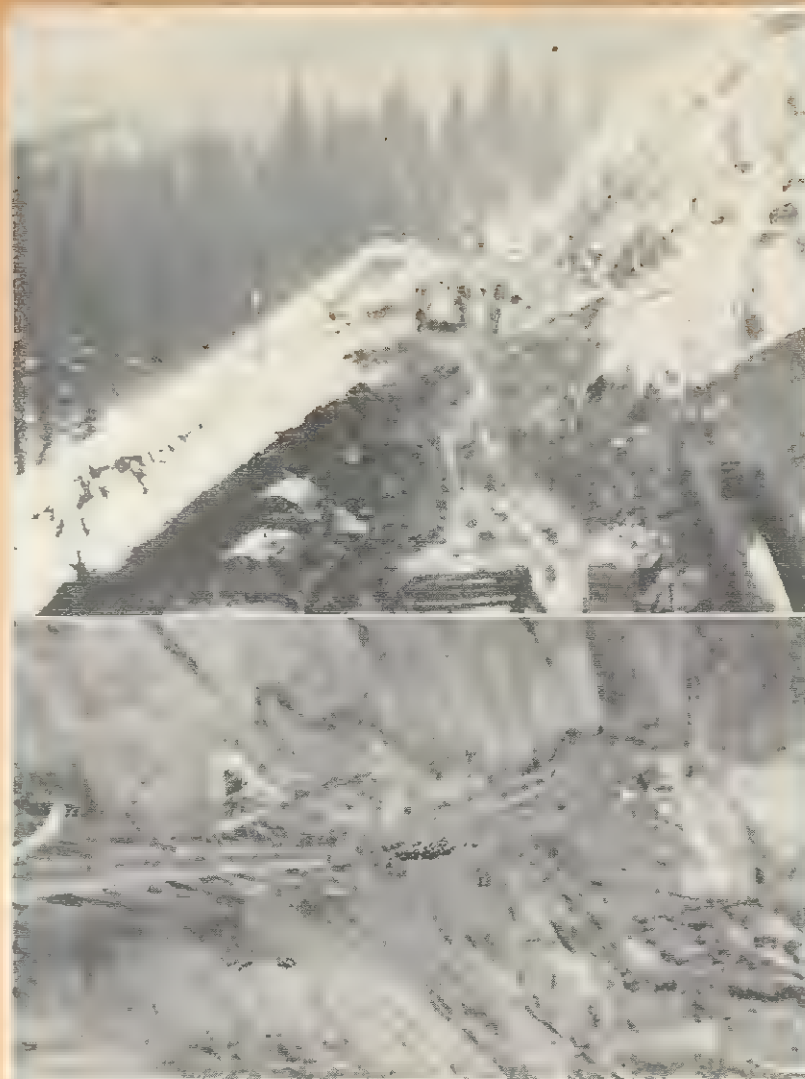
Some trains on the Cascade Route were cancelled and substitute trains were temporarily detoured over the alternate Siskiyou Line. Westbound Overland Route trains were detoured Ogden-Barstow-Mojave via Union Pacific and Santa Fe. To sidestep the washout near Tulare our San Joaquin Line trains were handled over Santa Fe track between Bakersfield and Fresno. Several Coast Line passenger trains required detours by bus around the high-water area and some Coast Line freight trains went via the San Joaquin and its detour.

We Get Help

Morrison-Knudsen forces were called upon to assist in the restoration work of the NWP, and at Cruzatte where the tremendous washout had to be filled and stabilized. In the washout in the Sierra Nevada a 120-foot timber trestle, requiring some piling 85 feet long, was constructed to permit operation on single track, pending permanent repairs to both tracks.

Two Southern Pacific men were reported to have drowned in flooded rivers—Marvin D. Coltran, B&B employee, in the Susan River on the Modoc Line; and Jesus C. Garcia, working with an extra gang, in the Pajaro River. Andrew Ochoa, laborer, was struck and killed by a freight train near a slide at Pinole on Western Division.

SP Bulletin



Sometimes the Going Gets Tough

REPAIRING Cascade Route, above, where slides took out track near Cruzatte. Below, flood damage on Northwestern Pacific.

—See next page for storm report.

January, 1956

2

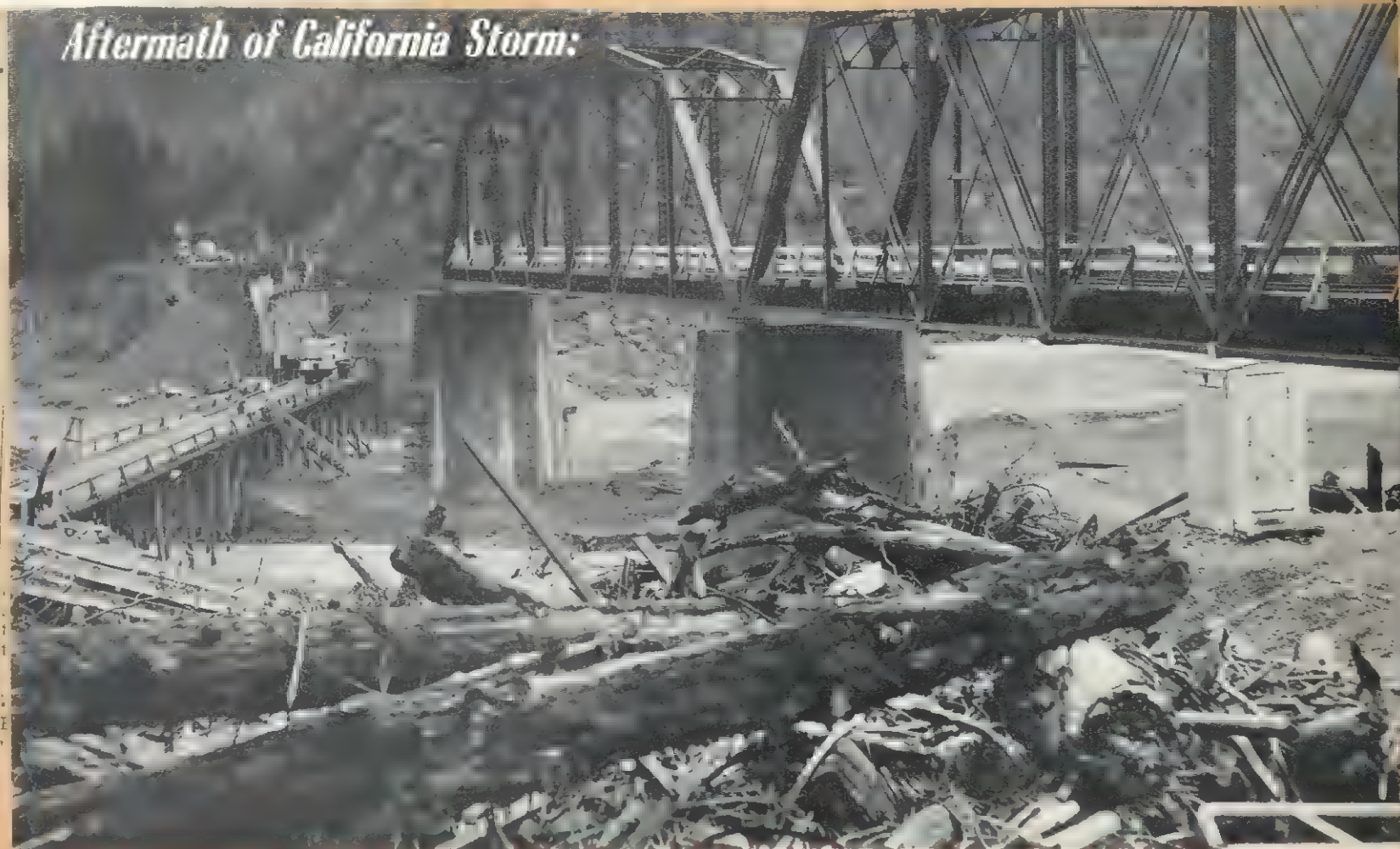
'COPTER FLIES SLIDE VICTIM TO HOSPITAL

A Coast Guard helicopter flew a critically injured railroad man out of rugged Eel River Canyon to a San Francisco hospital last night.

Charles E. Neal of 27 Kinross Road, San Rafael, was crushed by a boulder while supervising a crew clearing a rock slide on the Northwestern Pacific Railroad line in Trinity County.

Neal, the railroad's division engineer, was carried on a motorized handcar to Dos Rios, where the helicopter, piloted by Lt. Comdr. R. L. Fuller picked him up.

He was flown to San Francisco International Airport and transferred to the Southern Pacific Hospital, where he is being treated for fractured ribs, a possible wrist fracture and cuts and bruises.



Aftermath of California Storm:

REBUILDING 100 MILES OF RAILROAD



1355

rection of Charles Lederer. Sheriff E. R. (Buck) Server organized crews of volunteers who removed furniture and other household goods from scores of flooded homes. Red Cross officials opened a canteen at Modoc County Courthouse to feed the flood workers. Standby crews are ready to go into action again if a new storm develops. Almost countless tons of sand were bagged and distributed throughout the town. Mitchell

Jurasevick, manager of the Niles Hotel, declined an offer of sand and was prepared to protect his property with 300 s of flour. Modoc County health officials were surveying the flooded area Monday as a precaution against an outbreak of disease. Cleanup work has been started but it will be many days before the damages can be repaired.



HARD-FIGHTING CIVIL DEFENSE workers were credited with saving Alturas from total inundation Sunday by raging flood waters which caused damage estimated at more than \$100,000. Don Kettler, Herald and News photographer, who reached the stricken community a few hours after the Pit River overflowed its banks, obtained these graphic action shots. Shown (left to right) water pouring over the Klamath Falls-Alturas

highway, one mile north of Timber Mountain Inn. Volunteer workers are shown building a channel to divert the flood waters in Alturas. Next a bulldozer is pictured speedily erecting dikes to protect railroad bridges. Far right is a home surrounded by a miniature lake with two boys shown crawling along a wooden fence to get out of the danger area. Three hundred civil defense workers were mobilized to battle the flood under the di-

ALTURAS FLOODED BY PIT RIVER



RIGHT, from left, NW PRR General Manager Neal, Southern Pacific Chief Engineer Harry Williamson, M-K Los Angeles District Manager J. H. Wilson, helicopter pilot Vero Short, and M-K Project Manager H. D. Gard. (See photos, p. 19.)

FEBRUARY, 1965



Emergency on Western Railroads

With snow, rain and flood bringing devastation to the Pacific Northwest at Christmas week, M-K men take broad hand in restoration work. These scenes are in Oregon where equipment was rushed to help open Southern Pacific Railroad main line and helicopters were initial means of access. (See p. 10)

RIGHT: One of the worst trouble spots was at Noisy Creek, some 20 miles north of Crescent Lake, Ore., where a slide destroyed 130 feet of a 300-foot bridge, located between a tunnel and a snow shed.

BELOW: Officers and men worked round-the-clock to restore service on the Cascade line, SP's major route between Portland and Northern California. Shown, l-r, facing camera, are President B. F. Biaggini and Chief Engineer H. M. Williamson.



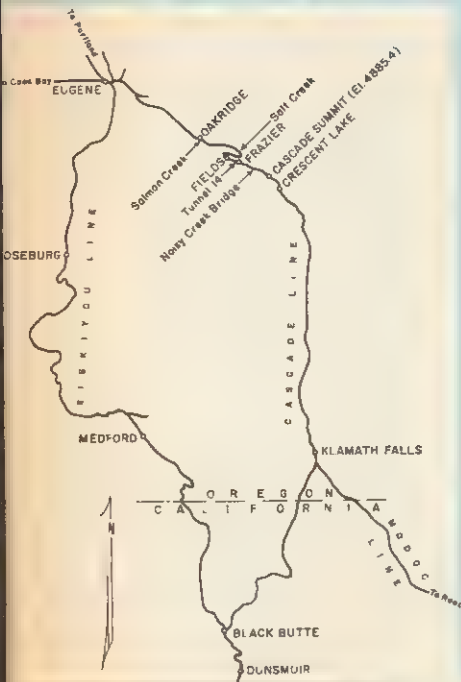
Worst in SP History

Record Floods

Violent storms began sweeping in from the Pacific a week before Christmas. These storms, continuing for 21 days, combined with unseasonable melting of the snow pack in the high mountains, brought widespread destruction to the West Coast and caused record damage to SP railroad facilities in Northern California and Oregon.

The Northwestern Pacific, running north from the Bay Area to Eureka and serving the Redwood lumber industry, took more than a \$7 million beating, the worst in its 50-year history. More than 100 miles of its line were damaged or completely destroyed by floods. A witness reported watching with unbelieving eyes the sight of the NWP depot in Scotia being swept downstream with other buildings, and out to sea.

Damage to Southern Pacific lines was in excess of \$5 million. Worst hit section of SP was near Cascade



A thundering earthslide swept away 130 feet of a 300-foot steel bridge at Noisy Creek, 20 miles north of Crescent Lake. At Salmon Creek, near Oakridge, a mountain-side slipped down, covering 700 feet of track with mud and whole trees to a depth of 60 feet.

While SP forces on several work trains tried to clear the line, there came still more slides, causing serious damage to bridges as the rains continued in full force. The rampaging waters of Salt Creek, which wiped out some 25 miles of parallel Oregon Highway 58, also undermined the footing of SP's long steel viaduct, and only heroic efforts of SP crews to divert the waters prevented collapse of the structure.

The fast dispatching of work trains to trouble spots early in the

BELOW: Using phones in roadmaster's office at Oakridge, Ore. to direct flow of men and materials were, l-r, Division Engineer Wayne Ferguson and Trainmaster W. B. Knight (back to camera), both of the Oregon Division, and Asst. General Manager R. D. Spence.



Record Floods Ravage Railroad

(Cont. from page 11)

"Little Red", and "Blue Goose." The 'copters were used to lift men, food and materials from Oakridge and Crescent Lake to the trouble spots and to string emergency code wires over areas where underground CTC code circuits had been broken by slides.

Repair materials, such as high-strength bridge bolts, snow plow parts and radios, were rushed by air and rail to San Francisco and Eugene from New Haven, Los Angeles, Chicago and Houston. More than 10,000 feet of 12-inch to 72-inch culvert pipe, vitally needed to carry off storm waters, was hauled from the Bay Area by Pacific Motor Trucking Company rigs.

Many items, not available on SP property, were purchased from outside suppliers, and says J. R. Cade, general purchasing agent-system, "It was gratifying to receive the wholehearted cooperation of suppliers who opened the doors of their firms anytime we asked, day or night, to provide us with emergency needs."

During this prolonged period of unusual stress, employees at all levels joined hands to fight the enemy. Forgetting the clock, men from the Mechanical, Operating, Engineering, Traffic, Executive, Purchases and Stores, Signal and Communications Departments and from PMT worked together as a team to get the job done. Cooperation was the keynote.

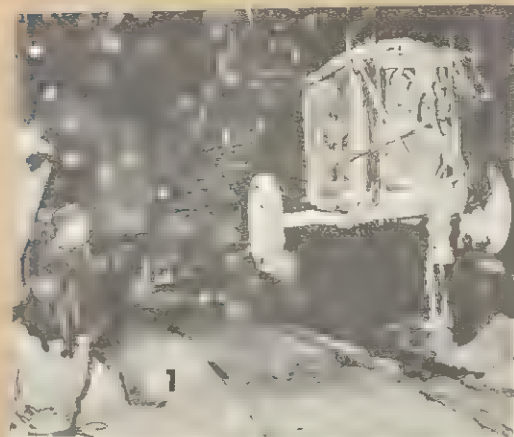
When rail service was completely disrupted by the storm, PMT moved mail, baggage and express, and perishables and food stuffs over the highway. All PMT terminals in the Bay Area, Sacramento Valley and Oregon were placed on 24-hour operation. The drivers fought wash-outs, rain, ice, sleet and snow as they piloted their heavy rigs along hazardous highways, but they got their shipments through.

The most challenging restoration job facing SP was at Noisy Creek bridge where 130 feet of the structure, as well as a steel tower and part of a concrete pedestal, had been swept away in the early stages of the storm. The 90-foot-high structure bridges a ravine between a tunnel and a snow shed in rugged mountain terrain. Crews snaked prefabricated portions of the bridge and other materials through the tunnel and with the aid of a giant railway-mounted crane, placed them into position. Rebuilding operations, under severe weather conditions, took more than two weeks.

At Salmon Creek, near Oakridge, six heavy bulldozers worked 24 hours a day for nine days to clear the 60-foot-deep slide before track rebuilding could start.

At Frazier, near Tunnel 14, the December 22nd slide undercut the roadbed so completely that fill alone could not replace the line. SP engineers had to design, fabricate and erect a 120-foot steel bridge there, supported on 25 steel pilings.

On January 8, freight trains began to move over the storm-damaged sections of the main Cascade line, and passenger train operations between



1. Rail-mounted crane cautiously eases welding machine out of tunnel at one end of Noisy Creek Bridge. Work went on despite snow and darkness. 2. SP employee shoulders his way through drift to reach signal. 3. Busy helicopters air-lifted food, materials and men from Oakridge and Crescent Lake to various trouble spots along Cascade line. 4. Steel rail piling provides a retaining wall near Cruzatte, some 20 miles north of Crescent Lake. 5. SP crew replaces rail after huge slide at Salmon Creek is cleared away.



San Francisco and Portland were resumed on January 14. SP was back on its feet again.

President Biaggini warmly praised SP workers who had battled around the clock to repair damage to lines in Oregon and California, in order to restore service as soon as possible. "Without their efforts, the commerce of these two states would have been damaged to an even greater degree than it was," he said.



FLOOD EMERGENCY: M-K Men Speed to Aid of Railroads and Others as Disaster Hits Northwest

SWEEPING into the Pacific Northwest and across northern California during Christmas week, a parade of wild storms, heavy rains and warm air currents left a trail of havoc that will go down in history. Avalanches of mud and snow crashed down mountain slopes and flood-swollen rivers rampaged

through rain-soaked valleys, inundating fields and towns and tearing out bridges, highways and railroads. During the first week in January, the fury of the storms eased and rivers subsided, leaving more than a score of people dead, thousands homeless and property damage of more than half a billion dollars.

ABOVE. typical destruction on Northwestern Pacific Railroad along northern California's Eel River, where rampaging flood waters devastated mile after mile of 100-mile stretch of line. **BELOW,** one of three N.W.P. bridges washed out by Eel. M-K work on bridges and track began immediately after flood.

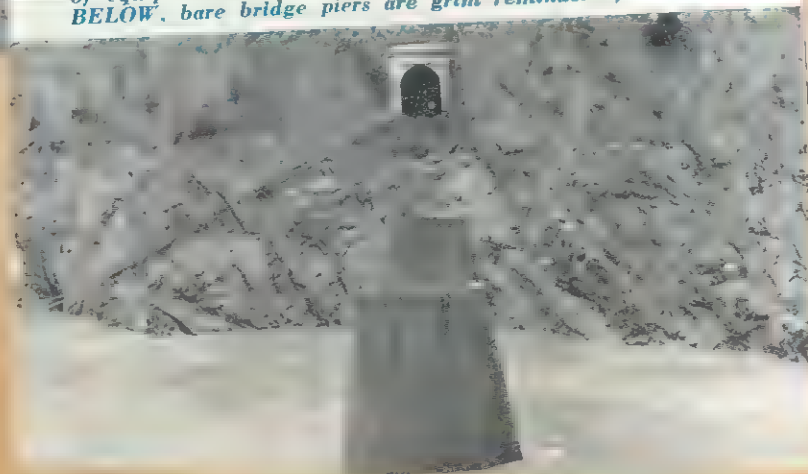


Men of Morrison-Knudsen Company, Inc., joined in the battle against the storms and destructive floods as early as December 23, first answering calls from railroads that were struggling to keep open their vital transportation routes. As damage mounted, the scope of M-K's activities grew to include highway restoration, harbor clearance and repair of hydroelectric power production facilities. Some projects were completed in days. Others, with men and equipment working around the clock through the holidays, were completed in several weeks. A few will require months to finish.

Even before Christmas Day, the enormity of the devastation became apparent, and a flurry of activity began throughout M-K's western operations. M-K executives joined railroad officials to survey damage and organize emergency repair efforts. Materials, equipment and men were quickly mobilized and directed toward stricken areas from as far away as Grand Forks Minuteman project in North Dakota. Large-scale operations got under way during Christmas week, and with the New Year not yet a week old, more than 300 M-K men and some 50 carloads of equipment were involved in the massive recovery effort, directed by an array of M-K's top construction bosses and specialists.

10

BELOW, bare bridge piers are grim reminder of Eel's power.



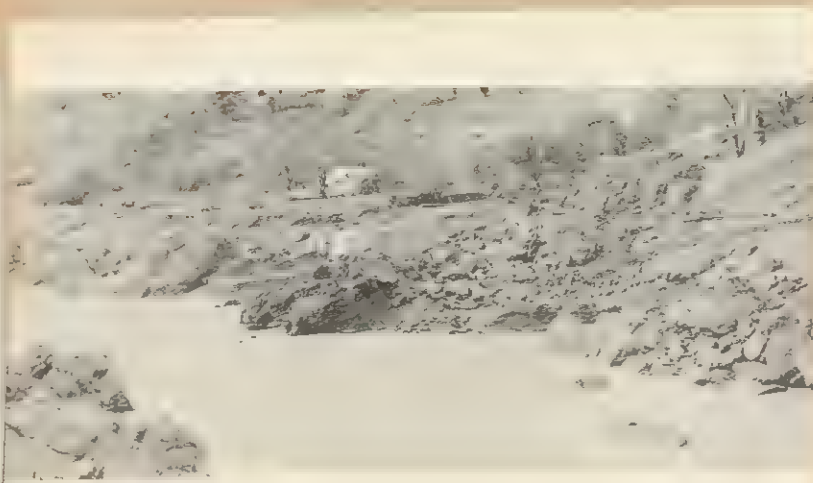
LEFT and BELOW: The raging Eel River destroyed this 620-foot bridge at Island Mountain, about 14 miles south of Alderpoint. Bent rails trail way from tunnel entrance. At flood stage, water reached above the bottom of the steel trusses.





March - est on Pacific January 1900.
 Debris on Eel River

BELOW: About 15 acres of logs
 were strewn over the NWP
 main line and siding at Camp
 Grant, about 4 miles south of
 South Fork, when the river rose
 above stacks of stored logs.



This area, about 4 miles south of Dos Rios, is another of the many points where the Eel River tore
 out track and roadbed. The house in the background was deposited there by flood waters.

History Repeats

WHEN Northwestern Pacific Railroad builders celebrated completion of their tough little rail line with a golden spike ceremony at Cain Rock in October of 1914 they little suspected they'd have to do it all over again 50 years later.

But, that's just what happened a few days back.

The same golden spike was brought out June 16 and redriven at South Fork in a celebration that marked Northwestern's recovery from the catastrophic floods of last Christmas. South Fork is just 32 miles north of Cain Rock, where the golden spike ceremony was originally staged.

South Fork won the honor this time because it was here that the last of three storm-destroyed bridges was restored. In addition to the three washed-away bridges, last winter's floods tore out 106 miles of Northwestern Pacific track.

The June 16 ceremony paid particular honor to the workmen who restored the rail service in a record-smashing 177 days. It also had a day of recalling much Northwestern Pacific rail history.

Among the honored guests in the speakers stand at the recent celebration were several Humboldt County residents who had witnessed the original ceremony 50 years ago. Among these were Miss Mable Weber who was a Northwestern Pacific clerk in Eureka when NWP opened its transportation line in 1914. Also present were NWP conductors Walter Cave, Charles Youell and Harry Bolson, each a witness to the 1914 event.

LIKE the golden spike ceremony of 50 years ago, the re-driving of the spike was an event worth celebrating.

From the speakers stand that stood on the foundations of South

Fork's depot that was washed away by the flood waters of the Eel River, President B. F. Biaggini, president of the Southern Pacific, reminded the celebrants that they "depend on the railroad to carry some 80 per cent of Humboldt's lumber and forest products to market, and the railroad depends on Humboldt's lumber and industry for some 84 per cent of its traffic."

That's the way it has been since NWP President Warren S. Palmer drove the gold spike in 1914. It had taken NWP five years to complete the rail line — one of the most difficult railroad construction jobs attempted in California.

Leading up to the 1914 event were still more years of effort, planning and the welding together of 41 small pioneer rail lines.

"At the turn of the century," Fred Stindt tells us in his 'History of the Northwestern Pacific,' "vast timber resources in the Redwood Em-

pire were still isolated. Tiny local railroads were coming into being in Humboldt County, but the only channels of commerce to the outside world were ocean-going ships, or maybe a few horse-drawn vehicles that had to labor over miles of dirt roads little better than mountain trails."

In 1903 the Atchison, Topeka and Santa Fe acquired various small rail lines in the Eureka-Scotia area, intending to run a line down through the canyon of the south fork of the Eel River and thence through Lake, Napa and Solano Counties to connect its main transcontinental line.

MEANWHILE, Southern Pacific had acquired lines north from San Francisco Bay to form a railroad through Willits, projecting a route through the canyon of the main fork of the Eel River.

Realizing traffic couldn't support the \$30 million cost of competing

lines through the rugged canyon the two big railroads joined to create the present Northwestern Pacific in 1907.

Progress was slow and difficult. Thirty tunnels were needed in the 100 miles of canyon. Even then, downpours brought sudden rise of the river, slides and other perils. The heavy winter of 1913 delayed completion by almost a year.

Finally, on Oct. 23, 1914, the line was completed at a cost of \$15 million.

Even as President Palmer was driving the last spike at Cain Rock



a slide was burying the line 30 miles north. It was 3 o'clock the next morning before two special trains of notables were able to reach Eureka to launch the big civic celebration there.

Continuing heavy rainfall delayed opening of the line for regularly scheduled service another eight months, until July 1, 1915.

Southern Pacific became the sole owner of NWP in 1928 when Santa Fe became weary of underwriting NWP's heavy losses. They gave Santa Fe \$4,600,000 for their interest, bringing SP's investment in the NWP to more than \$36,000,000.

—THE KNAVE

Northwestern Pacific Railroad and The Humboldt County Council of Chambers of Commerce

Cordially invite you to a

"Re-Driving of the Golden Spike" Ceremony and Barbecue

Commemorating Restoration of the Railroad

following the devastating floods of December, 1964.

At South Fork Wednesday, June 16, 1965 11 a.m.

(over)

Oakland ~~Star~~ Tribune
4 5CH★ Sun., June 6, 1965

Railroad Hit By Flood To Reopen

EUREKA (UPI) — The Northwestern Pacific Railroad, vital trade link of California's north coast, will officially reopen June 16, five days short of six months since its closure by disastrous Christmas week floods.

The "golden spike" used when the Southern Pacific subsidiary was originally opened in 1914 will be driven at South Fork June 16 the highlight of "recovery day" ceremonies.

The floods washed out 100 miles of track between Willits and Eureka and damage was set at \$10 million. At one point the Eel River was 21 feet above the tracks.

Before the floods, 74 per cent of redwood, Douglas fir and other lumber produced in the area were hauled by the NWP, rail officials said.

on Calls For Medi

Cascade Span Being Rebuilt



CRANE MOUNTED on railway car assists in reconstruction of Noisy Creek Bridge in high Cascades. One of 90-foot towers and 130 feet of span were swept away by slides during Christmas week storm. Railway crews must inch reconstruction ma-

terial through tunnel. New snowstorms this week grounded helicopters used by railroad to move workmen and materials to bridge site to repair work occasioned by previous storm. (Journal Photo by Jim Vincent) (Turn 12 Page 12)

SP Pushes Main Line Rail Repair

Willamette Pass Damage Heavy; 200 Men On Job

More than 200 men were still working around the clock Tuesday to repair massive storm damage to the main line of the Southern Pacific Railway through Willamette Pass.

Southern Pacific officials Tuesday — 13 days after the line was smashed by the Christmas Week storm—would make no attempt to estimate when the line can be reopened. This is the only major railway still closed by storm damage.

Snow, rain and fog continued to hamper construction crews, with more snow and rain forecast for Oregon Wednesday.

The men and scores of heavy machines were working on a dozen major breaks along the 50-miles of track through Willamette Pass Tuesday.

Highway Damage Complicates

Flood damage to highways complicated the problem of getting materials and equipment to the area, Southern Pacific spokesmen explained. Three sleeping cars were eased over the rails from Oakridge to Fields on top of the pass to house construction workers. Another three sleeping cars were reported rolled in to the Noisy Creek trestle from Crescent City on the east side of the divide.

Engineers and light supplies were being flown in by helicopter. Sam Whitney, who had three helicopters operating from the Southern Pacific station at Oakridge, said flying conditions were "anything but ideal, but we have been able to fly about 15 hours a day with the three machines."

Some heavy equipment and materials were being trucked up the Hill Creek road from Oakridge to the station of Fields at the 5,000-foot level on top of the pass, but this road is barely passable after two weeks of rain and snow. Reports show 85 inches of snow in the Fields area.

President At Scene

Highway 58 through Willamette Pass is about half washed out for 25 miles east of Oakridge, helicopter pilots report. The railway has been repaired sufficiently to permit the switchbacks from Oakridge southeast to Fields.

B. F. Biaggini, Southern Pacific's president, was reported in Crescent Lake Tuesday directing the repair operations, in conjunction with Harry Williamson, chief engineer.

Gusty winds and up to two inches of rain hit the Oregon Coast Tuesday, but no flood danger is foreseen, river forecasters reported. About an inch of rain is expected throughout Western Oregon in 24 hours, bringing some rise in stream levels, but no flooding, the Weather Bureau reported.

From two to four inches of snow fell in mountain passes, but not enough to stop traffic, the state Highway Department reported.

SP Link to Restored Portland

Southern Pacific railroad tomorrow will resume its passenger train service between Oakland and Portland, stalled since Dec. 22 because of the Northern California floods.

The service was cut off when a bridge in the High Cascades in Oregon washed out. The streamliner leaves Oakland at 4:35 p.m. Southbound trains arrive here at 8:45 a.m.

B. F. Biaggini, president of SP said today that the floods caused about \$12 million damage to the line's tracks and bridges, \$7 million in the Eureka area alone.

Meanwhile, the State Highway Department and railroads pushed efforts to reopen transportation links in Northern California, where at least 4,000 persons are jobless because of the floods.

Restoration of the lumber industry—a major factor in the area's economy—rests on repairing water-ravaged highways and railroad tracks.

Frank Blagan of the Georgia Pacific Lumber Co., speaking for the industry, told a special five-man congressional committee at Eureka yesterday that only the restoration of rail service will relieve the region's economy.

Meanwhile, the State Highway Department announced that emergency repair work totaling \$5 million is under way in coastal counties where six major roads are still closed to all traffic.

Still closed by flood damage are U.S. 101 south of Eureka, U.S. 199 in the Smith River Canyon, U.S. 299 in the Willow Creek-Salier area and state routes 36, 96 and 169.

One lumber firm announced it was turning to sea transportation to get lumber products to the Bay Area.

The Simpson Timber Co. said it will ship 90 tons of plywood building materials from Eureka tomorrow aboard a World War II LST.

Equivalent to three railroad cars of cargo, the building materials will be sent to yards in Oakland and San Jose for distribution to Bay Area dealers and contractors.

The floods crippled the agricultural industry as well. About 35,000 acres on more than 400 farms were damaged by the floods in Humboldt County alone.



RIGHT, snow covers work trains near Crescent Lake, Oregon. helped restore Southern Pacific traffic.

Another hard-hit line was the Southern Pacific Railroad's main San Francisco-Portland route, which was closed on December 22 by slides and avalanches in the Cascades between Oakridge, southeast of Eugene, and Crescent Lake. Railroad men and M-K crews worked around the clock, through snowstorms and chilling temperatures, from both sides of the mountains, to reopen the line of January 8. B. F. Biaggini, president of the S.P., personally directed this high-priority job, assisted by Harry Williamson, S.P. chief engineer. Directing the work for M-K were Vice-President Perkins and Los Angeles District Manager J. H. Wilson, with C. L. Dapron, D. R. Bagley, P. A. Corkins, Nick Bracco, A. S. Hunter and W. J. Winsky as field supervisors. Final restoration work is continuing in the Oakridge area with Dapron now in charge as M-K project manager.



ABOVE, from left, M-K Vice-President L. L. Perkins, Southern Pacific President B. F. Biaggini, and S.P. Chief Engineer Harry Williamson. BELOW, M-K supervisors near Crescent Lake, from left, P. A. Corkins, Nick Bracco and D. R. Bagley.





Super Corbiere Fireman John Frost Rotary 1914



Rotary at Gomez 1914



Rotary at Gomez 1914
 The photo shows the Rotary at Gomez 1914. The photo shows the Rotary at Gomez 1914.

John Frost
 Fireman
 Rotary
 1914

Super Corbiere
 Fireman
 Rotary
 1914



DOUBLE-HEADER NEARLY BURIED IN NEBRASKA SNOW—Two CB&Q locomotives which attempted to open the line near O'Neill, Nebraska, on February 2 are shown here nearly covered with drifted snow.

1950

Snow Scene at Crystal Lake Winter 1908



Snow Scene at Crystal Lake winter 1958



3. Bound Freight on Main Line near Burnside Bridge June 1948



2. Bound Freight Oak Street Brooklyn Yard June 1948

E. J. Porter



W. Bound Freight on Main Street East Portland Yard June 7th 1918



W. Bound Freight on main line near Burnside Bridge June 1918



During high water at Portland June 1948 Temporary
terminal was established at Brooklyn Yard

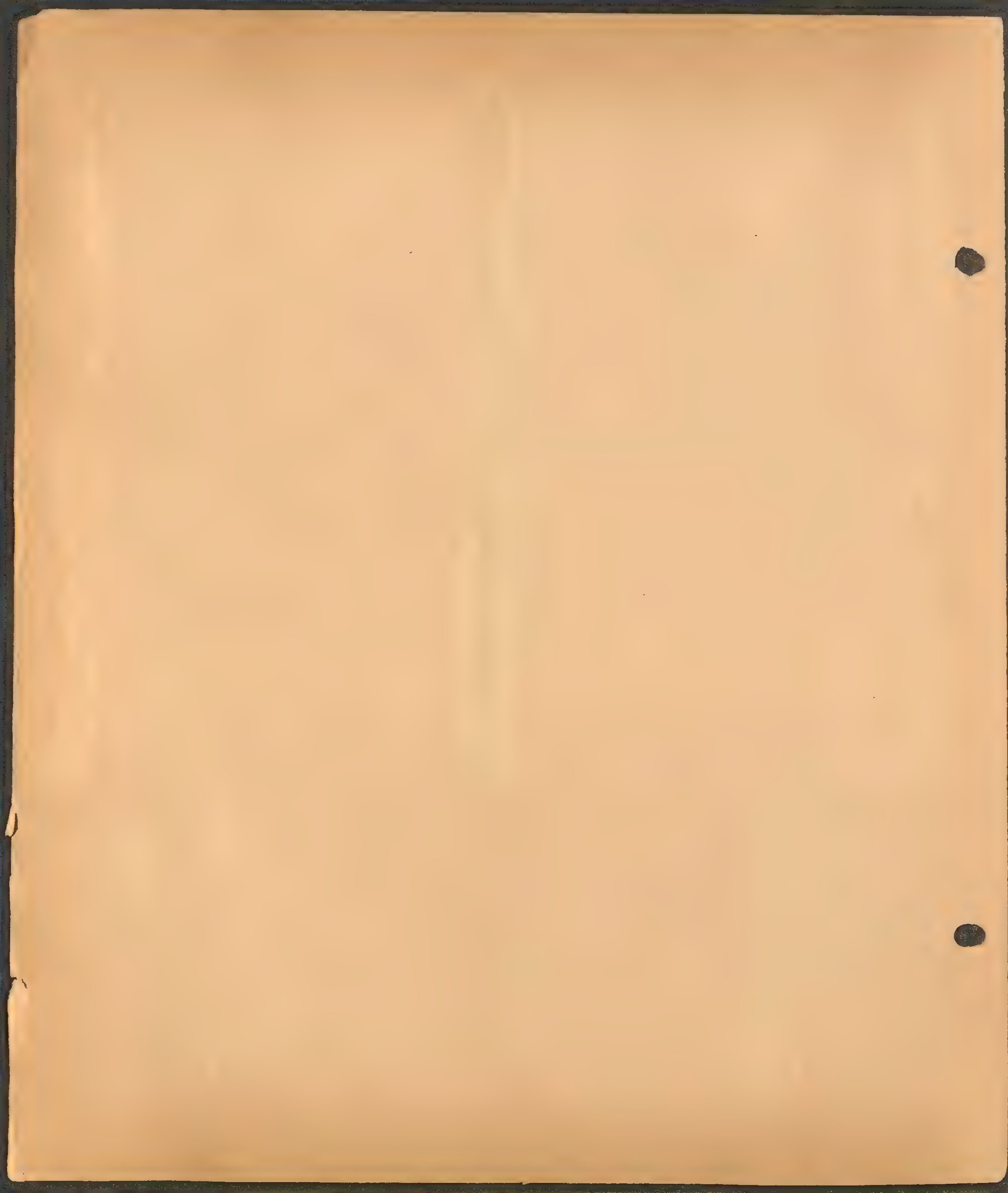


West Portland Ward during high water June 1948



3. Portland Freight House June 1st 1948





High Water Portland June 1st 1949

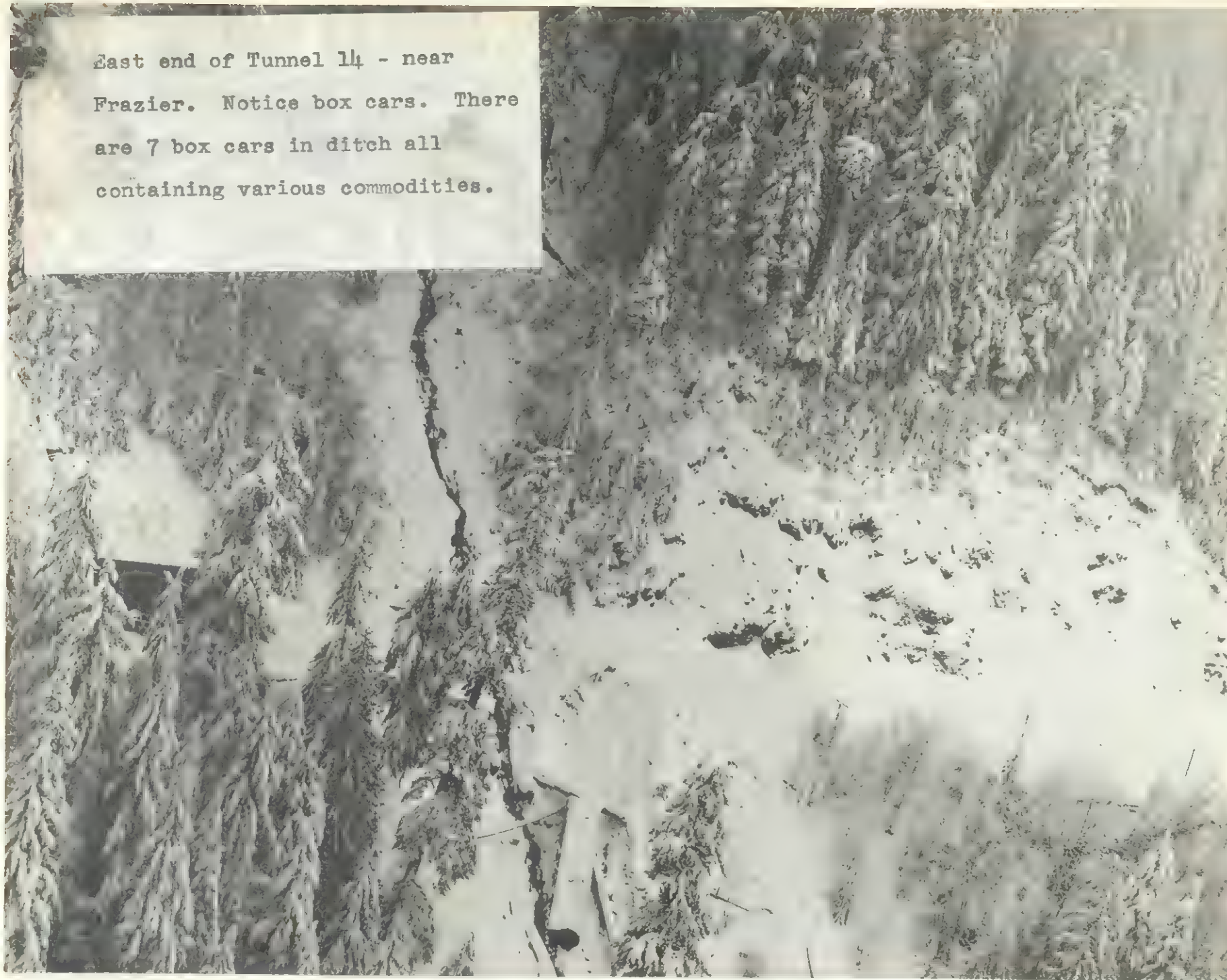




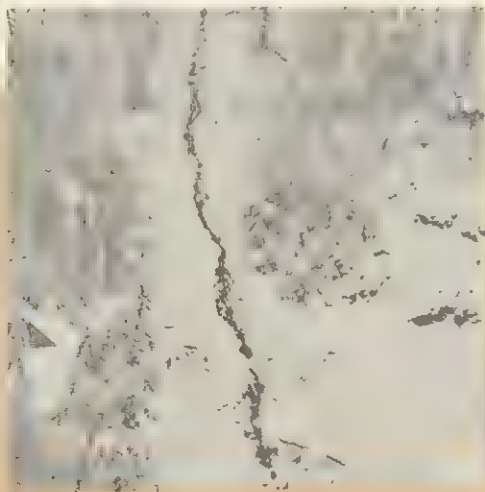
June 1st 1923 11th Street Portland, Oregon



East end of Tunnel 14 - near
Frazier. Notice box cars. There
are 7 box cars in ditch all
containing various commodities.



LEFT: At Frazier, about 23 miles north of
Crescent Lake, a slide derailed seven cars
from the center of a train and damaged the
roadbed near the mouth of Tunnel 14 so severely
that fill alone could not replace the line. SP
engineers had to install a 120-foot steel bridge
there, supported on 25 steel pilings.



■ It's a long road back for the
Northwestern Pacific — but trains



Working on the Railroad

Reconstruction work being performed by M-K on the Northwestern Pacific Railroad in northern California (see p. 3) is the duty assignment of the two groups shown in the accompanying photos. Office people in the photo above are, from left, Triss Yantis, receptionist, Keith Myers, payroll clerk, Ruth Jacobsen, voucher clerk, Ray Snell, payroll manager, Evelyn Collier, machine operator, Robert Ehlers, payroll clerk, Loretta McCury, machine operator, Duane Dowell, chief accountant, Betty Hale, clerk, Hobart LaGrange, office manager, and Myron Tilton, equipment clerk. In the photo at right are John Hermans, engineer recently transferred to The Netherlands, Paul Stauduhar, expeditor, Leo Boothe, master mechanic, Brian Goodale, field engineer, Leon Crawford, project engineer now in Alaska and succeeded by Alan Terrill; Ken Midyett, engineer, and Lloyd Waddeil, safety supervisor.



RECONSTRUCTION IN WAKE OF FLOOD

In northern California, where the Eel River rose more than 80 feet above normal flow during disastrous storms last December, men of M-K continue to push ahead with broad program of restoration work that includes rebuilding of 100 miles of Northwestern Pacific Railroad, repair of a highway bridge, and a massive cleanup of debris on the delta of the river. (See pages 3 and 8)





1912 - Northern Pacific January 1912
 Bridge near Island Mountain over
 Red River

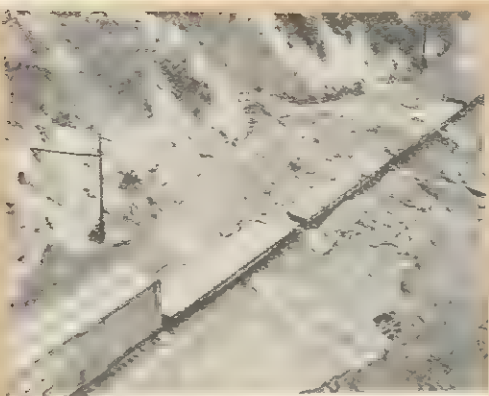


1912 - Northern Pacific January 1912
 Bridge near Island Mountain over
 Red River

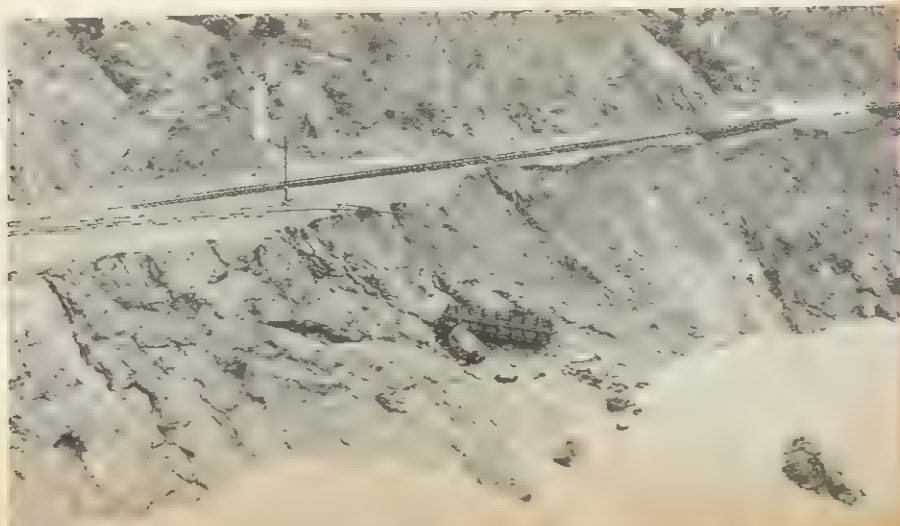


North-Western Pacific 1907

Slide near McCann



When spur track washed out, box car (center foreground) was dumped into the river. Note erosion of the embankment. This area is west of Ramsey at about Mile Post 188.





This picture of the snowbound train was taken by Photographer Ken McLaughlin early

Wednesday morning—not long before rescue came. It was taken looking toward the front

Copyright 1952, by The Chronicle Publishing Co.
end of the train, from which direction relief was on the way.

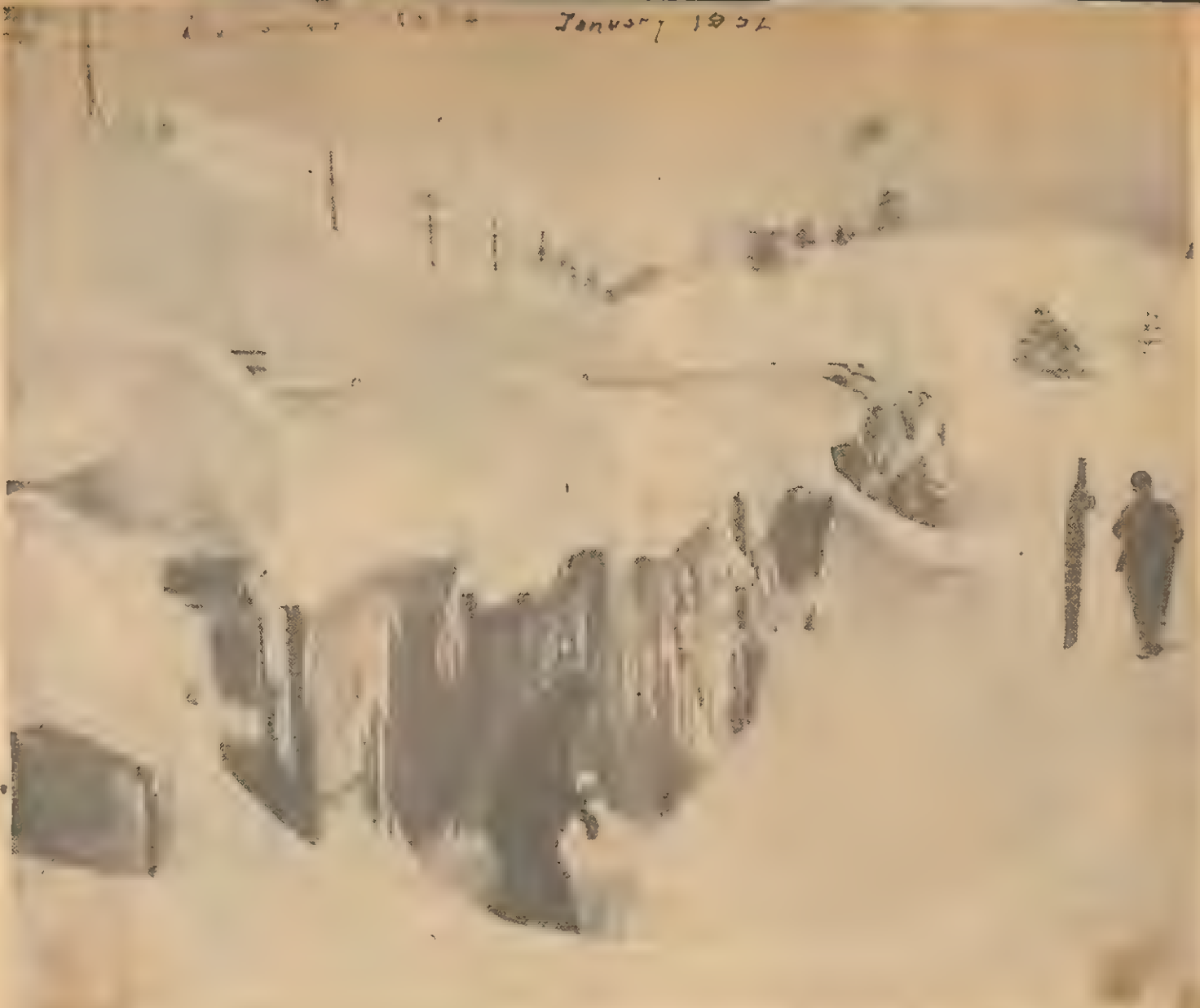
BLIZZARD



January 1952

While the storm still swirled about the etombed streamliner, passengers emerged to stretch their legs and escape he foul air inside

January 1952



By Chronicle Photographer Ken McLaughlin; copyright, 1952, by The Chronicle Publishing Co.
A railroad snow plow that tried to get through was stalled and soon stood ice-coated and all but hidden by drifts



By Chronicle Photographer Ken McLaughlin; copyright, 1952, by The Chronicle Publishing Co.
A helicopter tried in vain to land with rescuers, but could only hover overhead and drop a few extra supplies

January 1952



UPPER—Auger plow working in a deep drift east of Donner Summit on U. S. 40, Donner Lake in distance. CENTER—Clearing a path through a deep drift at airport on U. S. 40. LOWER—Twin Bridges resort on U. S. 50 partly destroyed by snow avalanche which swept down from slope in background, killing two persons.

One of the brightest is the story of the events that preceded release of the stormbound passengers of the Southern Pacific's City of San Francisco streamliner on January 18th. They were transferred from the stranded train to a relief train at Nyack via a roadway gouged out by a lone state highway plow.

Foreman Jack Snider of the Yuba Gap Maintenance Station fought blizzard conditions on Monday, January 14th, to rescue two men stranded in push plows above Pioneer Station on United States 40. With an "express" truck and a rescued pushplow truck trailing him, he wandered off the edge of the highway at 7 p.m., Monday, under conditions of zero visibility.

At midnight, exhaustion, cold and hunger forced suspension of efforts to extricate the plow. The men made their way to a small lodge near Butts Lake,

where they first learned of the Streamliner's plight.

Shovel Job

From daylight until 4 p.m., Tuesday, they labored with shovels to clear 135 feet of roadway and get the rotary back on the road. In the meantime the roadway back to the Yuba Gap station had plugged full again and the rotary's windshield wiper failed.

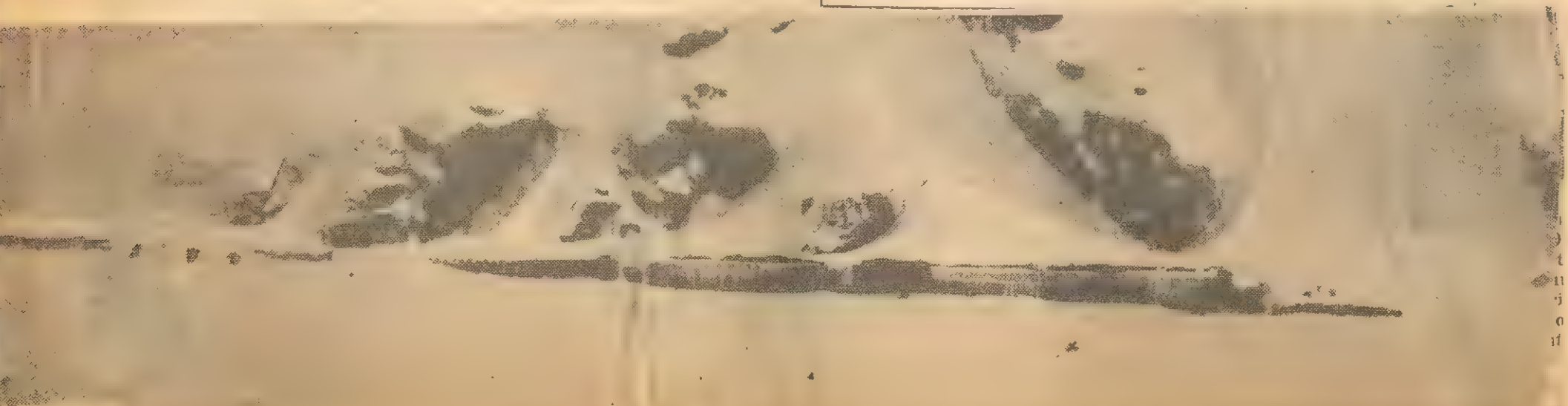
With weather conditions and the mechanical failure blinding the plow crew, Snider used his intimate knowledge of the highway alignment to direct the convoy home via two-way radio to the rotary from his place in the following express truck.

The rotary reached Yuba Gap at 4 a.m., Wednesday; a fresh crew took over under more favorable weather conditions, and four hours later had covered the 1.3 miles to the point where the Streamliner's passengers were picked up by auto from Nyack Lodge.

At 11 p.m. the plow completed the return trip to Nyack and the way was clear for one of the most dramatic mass rescues in the colorful history of the high country.

"The only other rotary in the area was broken down," Hellesoe said. "It's a funny thing, but equipment, like human beings, is sometimes naturally obstinate. Always before, that one had been a maverick."

BEFORE weasels, snow plows, railroad equipment, trucks, autos and the hard-working rescuers reached the City of San Francisco in its icy trap at Yuba Gap, there were three days of storm-frustrated effort. The Chronicle's Ken McLaughlin, who arrived at the scene with Chronicle Reporter Art Hoppe, 24 hours before any other newsmen, took the blizzard picture at right center while storm was still raging around the trapped streamliner.



Air view of the trapped City of San Francisco shows the high drifts that buried the train—and also protected it from the blizzard gales—and, at left, the entrance tunnels cut through the snow.

by Chronicle Photographer Ken McLaughlin; copyright, 1952, by The Chronicle



11-1-12
Loading Passengers near Yuba Gap for trip to Nyack Lodge





Passengers leaving winter Train January 14th 1951.



Supt Jennings Pulling
City of San Francisco out
of snow bank January 1952







The suddenness of the snowstorm trapped these trucks at Baxter on U. S. 40 on January 11th. Photo by San Francisco Chronicle.



SNOWBOUND STREAMLINER City of San Francisco marooned 226 passengers and crewmen for 72 hours near California's Donner

Pass. After army weasels and relief trains bogged down in rescue attempts, highway snowplows finally cut through to lift the siege.

January 1952

Standing beside the stalled streamlin

Rescue Train Battles Deep Sierra Drifts



(AP Wirephoto)

Digging its way foot by foot through the deep Sierra snows, a Southern Pacific work train slowly fights its way eastward up the mountain side toward the stranded streamliner. When this aerial photograph was taken, the train was five miles from Yuba Gap. It has backed some distance down the hill preparatory to making a new assault upon the heavy drifts that cover the tracks.

January 22



(U. S. Army photo)

Cutting Through Drifts

Sixth Army weasels stood by in a chasm cut through snowdrifts as a railroad rotary snowplow struggled up the grade toward Yuba Gap. It was unable to get all the way to the trapped City of San Francisco. Behind it, however, a train was able to reach Nyack Lodge, where the 22 persons imprisoned on the streamliner were finally brought to transfer aboard and make the trip to Oakland in comfort.

Railroad Men Battle Big Snow at Summit



A TUNNEL TO THE DOOR and chimney's straining to keep above the snow, tell the story at Cascade Summit where an all-out effort by the railroad is managing to keep transportation moving despite 14 feet of snow.



ROTARY PLOWS have been running 24 hours a day for a solid week to stave off paralyzing snow. These whirling blades chew at the newly formed drifts, and the fluming discharge of snow creates a spectacle as it arcs 50-feet into the air.

Trains Running On Time

By R. Harlow Schillios

CASCADE SUMMIT — All the trainmen know which 14-foot-high snowbank hides the shanty with the pot-bellied stove.

It's here they pause to warm numbed hands, curse the snow that blockades the rails and wish a miracle would end their fight.

Staggering through round seven, local railroad crews were wondering Tuesday if winter's knockout punch would arrive in the already predicted new storm.

It is a gruelling struggle to keep the railroad open during Oregon's worst onslaught since '73, but the men still hold a slim margin over the winter.

24-Hour Basis

Using two rotaries, one flanger and a speeder, a force of 150 men have concentrated on 40 miles of track around the Summit which they consider the "worst area." This machinery has been operating on a 24-hour basis since last Thursday. No machines rest and few men do.

Crews are often at work for 24-hour periods in the efforts to keep tracks open. A little slack in the fierce schedule, a little more snow and the last remaining track over the hump may close.

163 Inches So Far

Roadmaster T. R. Godley, Oakridge, says present snowfall has already surpassed the 130-inches that came in '34-'35. The stake stood at 163-inches Wednesday. More snow within 36 hours was predicted.

"Those men with the shovels are really taking the brunt of it while keeping those switches open," said assistant division engineer H. M. Williamson.

To direct Operation Highball, officials of the Southern Pacific railroad left desks in Portland for quarters at Cascade Summit. Division Engineer G. E. Stewart and L. R. Smith, assistant superintendent of the Portland division, Eugene, are "at the front."

One of Eugene's busiest men these days is Chief Dispatcher V. M. Fields who, in 42-years of service locally, says the present 163-inches tops everything in his memory.

Despite the snow, four passenger trains are running in each direction and on time. So are four snow-trains and a helper locomotive which assists every engine that takes a run at the hill. That puts 10 sets of helpers in service.

The Southern Pacific is doing good business.

A new agent arrived at Cascade Summit a week ago, quite unprepared for the harsh weather.

Railroaders Battle Snows

(CONTINUED FROM PAGE 1)

He is wearing burlap sacks around his feet until his boots arrive from Medford.

Lloyd Grough, ordinarily a tunnel man at Oakridge, was shoveling snow at the top of the hill. After working 29½ hours he stopped to take a rest and say, "If you didn't know where things were before the snow came, you have a hard time finding them now."

Once snow has been dug away from the switches, smudge pots are put under the rails and left burning to keep them in operating condition. In a 24-hour period, 280 gallons of kerosene are used around the Summit just to keep these smudge pots alive.

A mishap splintered a box car Tuesday when one of the rotary engines plowed into it. The damaged rotary was rushed to Eugene for repairs.

Bitter winds, which would set anemometer cups whirling, covered the tract behind a section hand with new drifts after every shovel-ful he threw aside. He watched the snow at play and muttered, "Snow is hell, sure enough."



The newer Cascade Line of SP's Shasta Route has much awe-inspiring mountain scenery. At this point the roadbed is carved from the rock mountain side far above Salt Creek Canyon. A bit farther along, the line doubles back on itself in a curved tunnel and works down to the valley floor.

Heavy Snow Fall Banff 1948



Main Street Banff 1948



Main Street Banff 1948







Bishop Calif 1933



View of Bishop on January 1st
1933



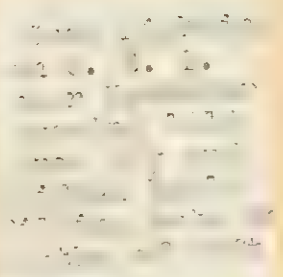
Rot-17 near Kemmerer Wyo
1914



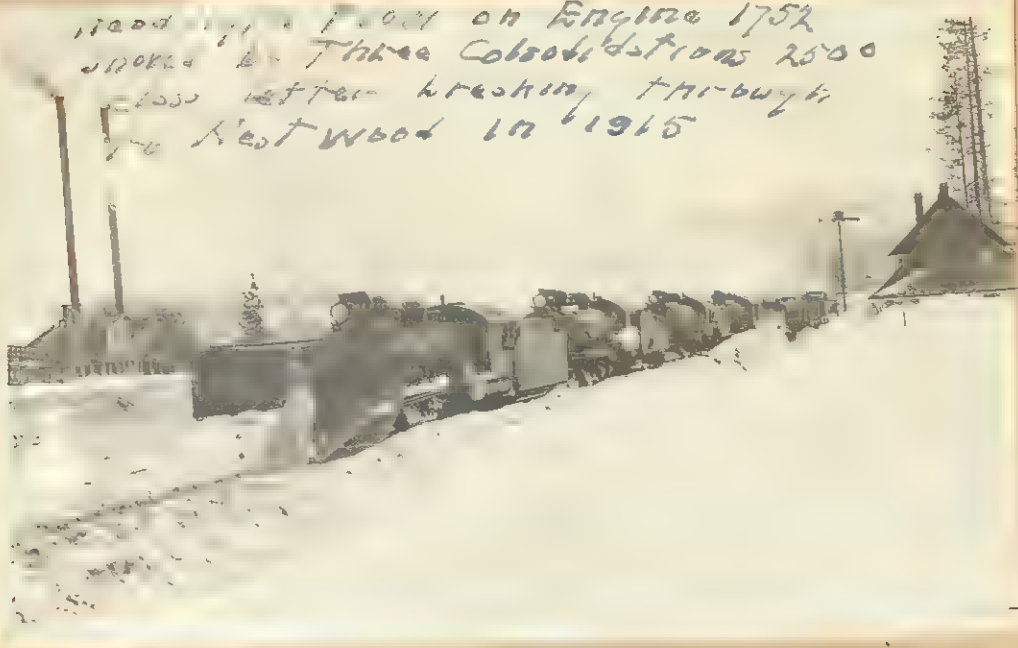
T.L. Williamson



... ..
... ..



road on Engine 1752
 snowed in Three Consolidations 2500
 class better breaking through
 to Westwood in 1915



Westwood Jet Section House 1936



Horse Drawn
 sled used to
 Break Roads
 Westwood-Cadet
 1915 Not

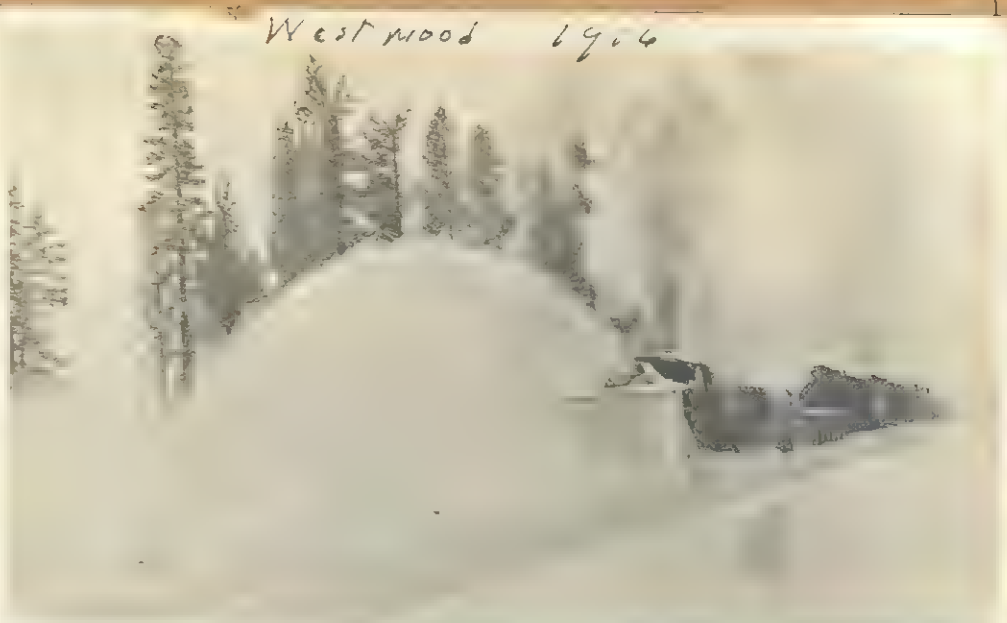


1932

Common Near Westwood 1914



Westwood 1914



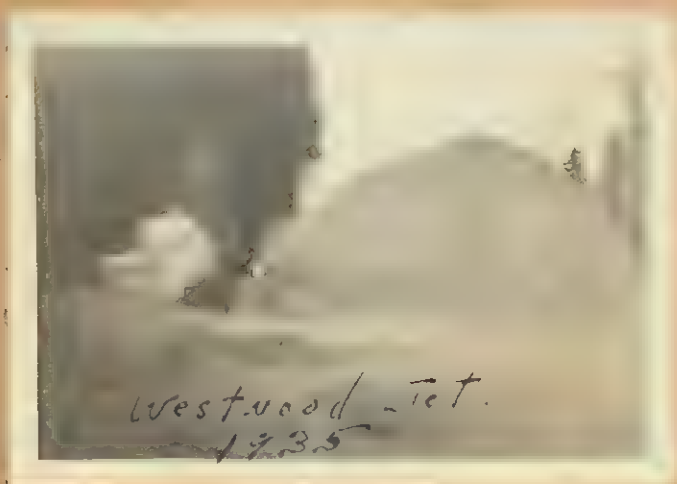
Westwood 1914



Westwood 1915

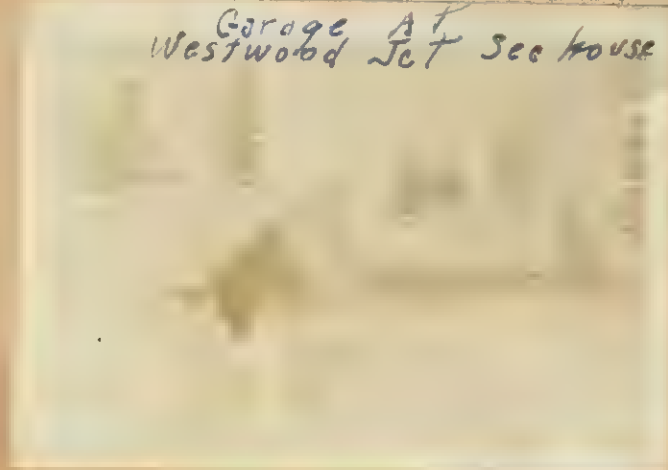


Westwood 1916



Westwood 1915

Garage at Westwood 1915





A Snow Battle Worth the Telling

WINTER'S blustery January winds bring California its desperately needed rain and snow, but on the other hand these gale-like blows have always been a burden to transportation, especially in the Sierra Nevada. History's most noted disaster of the Sierra snow country was, of course, the Donner Party of 1846. Since then the winter storms have taken their spite out on the railroads, highways, and even the airways.

The intriguing subject of snow clearing methods and equipment developed by men is entertainingly told by Gerald M. Best in his book "Snowplow," a picture and word story of clearing mountain rails. Howell-North Books of Berkeley are the publishers.

The idea of writing a book about the battle against snow on the railroad across the Sierra Nevada began some 10 years ago by David L. Joslyn, according to Best. "In the intervening years until his death he accumulated material with which to illustrate the book."

"He also gathered data on the history of the running fight between the elements and Southern Pacific employees, a contest now nearing its centennial anniversary. But Dave never got beyond working up an outline of what he wanted to tell about snowsheds, bucker and machine plows and all the devices invented by man to combat the deep snow and permit trains to go through."

After Dave Joslyn's death it became Best's voluntary task to take up where his friend left off.

Best leaps into his story with zest and points to Arthur Brown, superintendent of buildings for the Central Pacific, as the man to make the final decision to build "snow galleries," as they were first called. That was immediately after the first great battle with snow in 1866-67.

The first snowsheds were of A-frame design, the steeply pitched roof still used in mountain cabin construction in the Sierra. But the A-frame peaked roof sheds fell into disfavor after several years of experience and were discarded in favor of the flat-roofed type. Most of the new construction in 1869 was of the new design, Best reports.

AFTER the Golden Spike joined the completed Central Pacific rails at Promontory Point, Utah, on May 10, 1869, through passenger traffic east and west began immediately.

"With the snowsheds a proven necessity for the winter months, the summer of 1869 saw the ad-

vance guard of tourists making the rail trip to California complaining. In passing through 30 miles of snowsheds, comments from passengers were caustic and frequent," Best writes.

"The breathtaking view of Donner Lake and surrounding mountains was completely cut off by the sheds. Heeding these complaints, the Central Pacific management ordered windows cut in portions of the sheds . . . above Donner Lake. The windows were soon fouled up with soot . . .

in just nearly two miles of sheds burned near Cascade during the summer. Since the company had just acquired a remarkable new snowplow called the Rotary . . . the directors requested this section not be restored. That winter one of the greatest snow storms of all time hit the Sierra and the portion of the line where the sheds were not rebuilt was the center of the worst blockade the Central Pacific ever experienced. The missing snowsheds were replaced the following summer."

Besides fire, snowslides were another danger to the sheds. Completely unpredictable, the slides usually carry rocks and boulders . . . Frequently hundreds of feet of shed structure were destroyed . . .

DURING the construction of the Central Pacific through the snow country in the Sierra Nevada many locomotives were equipped with a wedge-shaped plow made of sheet iron, fastened to the cowcatcher. Such was the

standard practice on eastern railroads from the early days.

"This," says Best, "led to the development of the Bucker plow after the blockade of 1865-66, the first being completed at the Sacramento shops in 1866. . . . Central Pacific Plow No. 1 left Sacramento on Oct. 24, 1866. Snow was already heavy in the mountains.

"Soon the Bucker was proven too light. . . . On occasion as many as 11 locomotives were used to plow through the deepest snow." In his book Best follows with several thrilling accounts of the experiences of the snowplow trains.

The Bucker was devised to push snow aside. Next to be tested were the Rotaries. There was competition among manufacturers on the Rotary designs plus the Kryger Steam Snow Shovel, the Cyclone Steam Snow Plow and one called the Excavator, for narrow gauge work.

"In 1957," Best says, "the Southern Pacific began a program of rebuilding all their Rotaries to electric operation. Old Faithful Rotary No. 7200, first on the Southern Pacific, was retired in 1958 after 70 years of service. It was deemed too old to be worth converting to electric power.

"Through the years the Southern Pacific (nee Central Pacific) has been subject to snow blockades. Before the advent of the Rotaries it came to be expected that the line would be closed at least once each winter."

The snowsheds and snowplows were the first and second lines of defense for the railroad.

Westwood Calif 1915



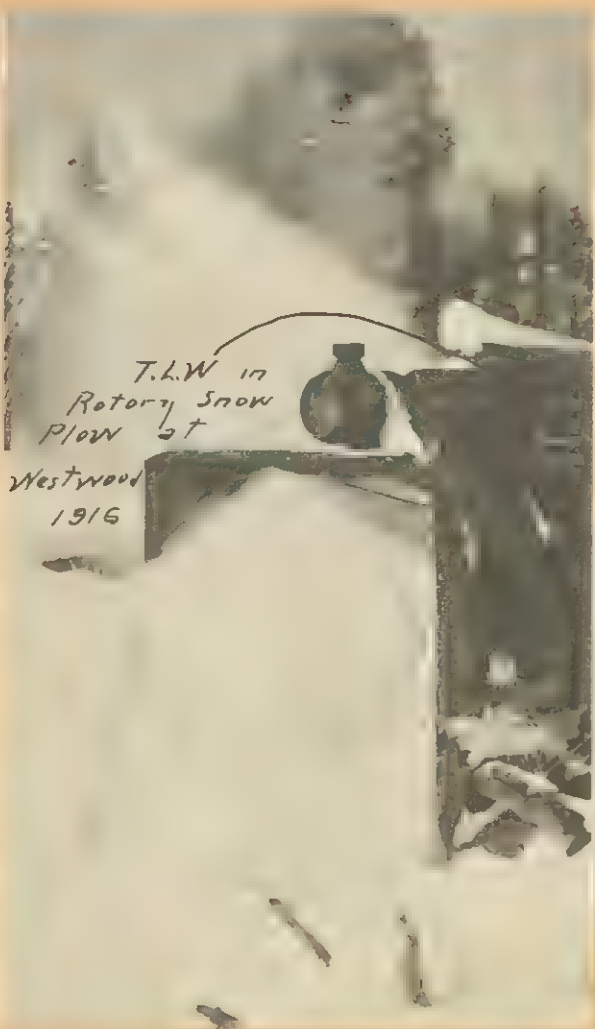
Rotary Snow Plow



Westwood Jan 1915



Westwood 1916



T.L.W. in
Rotary Snow
Plow at
Westwood
1916



Westwood Jan 1916



Near Westwood 1916



All on Train Are Rescued

OF IT BY ANOTHER

TRAIN BY-PASSED

Few people, least of all the passengers on the City of San Francisco, could foresee the epic proportions of the event when the train stalled against the snowbank last Sunday morning.

Confident in the efficiency of their most up-to-date equipment, Southern Pacific officials let three other trains pass the City of San Francisco on the adjoining track during the first few hours it was stalled.

Late Sunday night, with the streamliner 15 hours overdue in San Francisco, the railroad was reporting confidently that the tracks would be open "within a few hours."

Hindsight demonstrated as early as Monday that it would have been prudent to transfer the City of San Francisco passengers to any one of the three trains that had by-passed it.

On Monday, there was more disillusionment for the officials who had believed modern machines finally have conquered nature at her worst.

RESCUE EFFORTS

Two rotary snowplows, huge mechanical giants mounted on freight cars, were dispatched to the rescue—one from Sparks, east of Reno, the other from Colfax, at the western edge of the High Sierra.

The plows began chewing efficiently and confidently through the drifts.

But the blizzard held. The fury of the storms was greater than the men with slide rules who designed the plows had ever anticipated.

The plow from the east passed Norden, where train sheds protected the track, and gnawed its way forward a few miles before nightfall. Then it bogged down. An avalanche, bringing part of the mountainside with it, came roaring down on top of the mechanical monster, and it was held fast, another prisoner of the storm.

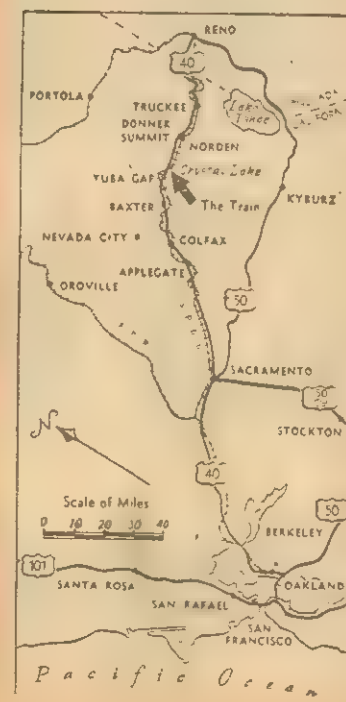
TWO PLOWS STALLED

The rescue attempt from the west was even more disheartening. There, two plows stalled, both within sight of the City of San Francisco.

And as one stood helpless behind a mass of snow and glacial rock, a slide came loose with a roar that shook the countryside. Men, tiny and insignificant in the face of the mighty avalanche, ran in all directions. Later, they gathered in a little group to take stock. Two of the original group of trainmen were missing. One, a track worker, was found later. He had fled in panic through the drifts toward the lights of Rainbow Tavern, a mile and a half away, and was safe.

The other, the engineer who was operating the plow, could not be found. His body still lies somewhere beneath the drift, the single fatality of a mountain catastrophe that teased the genius of men and made them midgets.

CCCCAA PAGE A
Thursday, Jan. 17, 1952
San Francisco Chronicle



At the highway, a caravan of two State Division of Highway's trucks and 11 automobiles waited. The caravan had come from Nyack Lodge, at Emigrant Gap, five miles away, through a deep cut in the snowdrifts completed at 8 a. m.

Leader of the caravan was Jack Snider, foreman of the Yuba Gap maintenance camp, who had worked with his crew since early Tuesday to cut the pathway of escape.

In groups of 45, the passengers, were taken in the caravan to Nyack Lodge, to bathe, to warm themselves by huge fireplaces, and to recuperate as their physical condition required before being put aboard a relief train, waiting on the cleared tracks at the Emigrant Gap depot below.

The relief train started its return trip down the snowy slope at 3:52 p. m. and was expected to reach Oakland Mole in eight hours or less.

Many round trips of the highway caravan were required to clear the stricken train of its personnel—192 passengers and a crew of 28. They were permitted only a short rest at Nyack Lodge before being taken aboard the glistening relief train for completion of their trip.

The City of San Francisco, the most modern rolling equipment in the transcontinental service, was left on its tracks, buried and helpless in its icy sarcophagus.

Art Hoppe, Chronicle reporter, and Kenneth McLaughlin, Chronicle photographer, witnessed the liberation of the passengers, as they had witnessed the desperate attempts of men and machines to wrest a reluctant amnesty from the mountain captors.

"It was the State Highway Maintenance crew that pushed through the last link," Hoppe reported from Nyack Lodge.

"The tracks to the City of San Francisco were blocked, both to the East and to the West, by the snow plows that had tried to reach it and failed.

"This last five miles of cleared highway by-passed two plows and expedited the rescue, perhaps by as much as a full day. If the passengers had been required to spend another night out there, it would have been pretty awful."

OTHER ATTEMPTS

The other elements of the rescue attempt, which had been under way since Monday, were conducted principally by the Southern Pacific Railroad, with the co-operation of the Pacific Gas & Electric Co., the State Highway Patrol and personnel from the Sixth Army.

The effort that finally paid off for the railroad was that organized at Colfax. A rotary plow, which started early Tuesday, completed the 24-mile run in 24 hours.

Assembled at Colfax were armed forces doctors and nurses and four flat cars loaded with Army weasels, the small Arctic jeep-like affairs, equipped with caterpillar treads. Also in readiness was a 17-car Pullman train.

The railroad knew it could not get through to the train with its snowplow and relief equipment because of the overturned snowplows that already had fallen hors de combat in the storm. Hence the weasels, to go where the rotary plow might stop.

A CHANGE IN PLANNING

That plan proved unnecessary, however, due to the efforts of the highway crew under Snider. When the tracks were clear as far as Emigrant Gap, the relief train started off with its 14 Pullmans, two diners and a baggage car.

It left Colfax at 9:35 a. m. and arrived at Emigrant Gap in mid-afternoon.

Historical Footnote

Train Was Stalled Near Site of Donner Party Disaster in 1846

The streamliner City of San Francisco was stopped in its tracks by a savage blizzard only a few miles from Donner Pass, the 11-acre tract set apart as a memorial to the ill-fated Donner Party.

The tragedy enacted there in the winter of 1846 marked one of the bloodiest chapters of suffering and starvation in the history of the West.

An emigrant train of 87 pioneers, headed by George Donner, left Illinois in the spring of that year. Footsore and parched by the crawl across the Nevada desert the party reached Donner Lake (below and east of the pass) in October.

Most covered wagon emigrants in those days followed the famed Oregon Trail, and came into California by the Humboldt river, but the Donner Party had been advised to cut across south of Great Salt Lake and through the Sierra pass and save 400 miles. Their des-

tinuation was the Sacramento valley.

EARLY SNOW

Snow began to fall on October 2 that winter, earlier than usual. Soon the faint trail became obliterated, and the Donner wagons bogged down. Many of the animals had died in the trek across the desert.

Soon snows piled up to 20 feet in the camp by the lake. The helpless party ran out of food, and horrible misery set in. By December 10 Jacob Donner, brother of the leader, and three others were dead.

Others were dying, and the survivors, driven to desperation by famine, began to practice cannibalism on their dead fellows.

Ten men and five women started West over the mountains on foot, in a grim bid to escape the horror. Some died, and the others devoured their bodies. They killed two Indian guides for food. Thirty-two days later, the five women and two men reached safety in an Indian village.

RESCUE EFFORTS

Word spread and a rescue party of seven men set out for Donner Lake on February 19. They found the survivors and started back with 21, mostly children, three of whom died on the way out.

Later relief parties fought their way over the rugged high country in blizzards. Mrs. Tamsen Donner refused to leave with the third relief group, said goodbye to her two daughters and stayed to nurse her dying husband. She had died when the fourth party arrived — to find one man alive, crawling insanely among the bones of his companions.

That was more than a century ago when a High Sierra blizzard stopped a covered wagon train. And today the region is still rugged enough, and the blizzards savage enough, to stop the best in modern land travel.

The Donner Party encountered a snow depth of 20 feet — the City of San Francisco a lesser depth, it stood at around 18 feet yesterday at Norden, two miles west of Donner Summit.



—Auger type rotary plow cutting through drift just east of Donner Summit.



A plow was digging into the record shattering cover of snow at the Donner Summit highway maintenance station today when Robert Handsaker of The Bee took this picture from an airplane piloted by Robert Spiller of the Hill's Flying Service. The station itself virtually is buried. Additional pictures by Handsaker and story by Tom Goff on page 35.

Spring Is Here; Sierra Snow Depths Hit Record Levels

Spring, accompanied by brilliant sunshine, arrived officially in Superior California today shortly after 8 AM but in the Sierra Nevada the effects of a record breaking snowfall made the date on the calendar only a grim joke. There are 353 inches of snow on Echo Summit, 336 inches at Soda Springs, Nevada County; 321 inches on Donner Summit and 314 at Norden, Nevada Coun-

ty. These depth figures break all high marks back to 1898, which is the earliest date of record at the weather bureau. Unofficial records show greater depths in 1880 and 1890.

Roads Closed

Highways 50 and 40 are closed and are expected to remain so for some time. The Feather River route is open only to cars with chains. It was closed from 5 PM yesterday until 2 AM today. Many other mountain roads are buried under tons of snow.

The Southern Pacific Company finally got its main line over the Sierra open at 3 AM. It had been closed since Tuesday.

Calls for assistance in clearing roads were sent out from the Lake Tahoe region following a blizzard which was described as worse than those experienced in Alaska.

Doctors are making their rounds on snowshoes. Ranches are isolated and cattle are with-

Continued on page 9, column 3.

HAROLD GILLIAM

Terror at Yuba Gap

THE 196 people who hustled with their baggage through Chicago's Union Station to board the streamliner City of San Francisco ten years ago last Thursday afternoon were looking forward to a pleasant two-day ride to the West Coast. They did not reckon with an extraordinary combination of circumstances coming into being at that very hour far out on the Pacific, a fifth of the way around the world from Chicago.

A great mass of cool, heavy air pressing down on the ocean waters, known to meteorologists as the Pacific High, was far to the north of its usual location, in a position to block a storm moving from the far Pacific toward the coast. Forced to detour around the north end of the Pacific High, the storm headed for the coast of Alaska. But there it ran into another unusual force—a river of cold air whistling down out of the Arctic.

The cold-air stream intensified the storm and blew it south-eastward until it centered off the mouth of the Columbia River. There the storm settled down, sucking into its vortex vast masses of air over a diameter of a thousand miles.

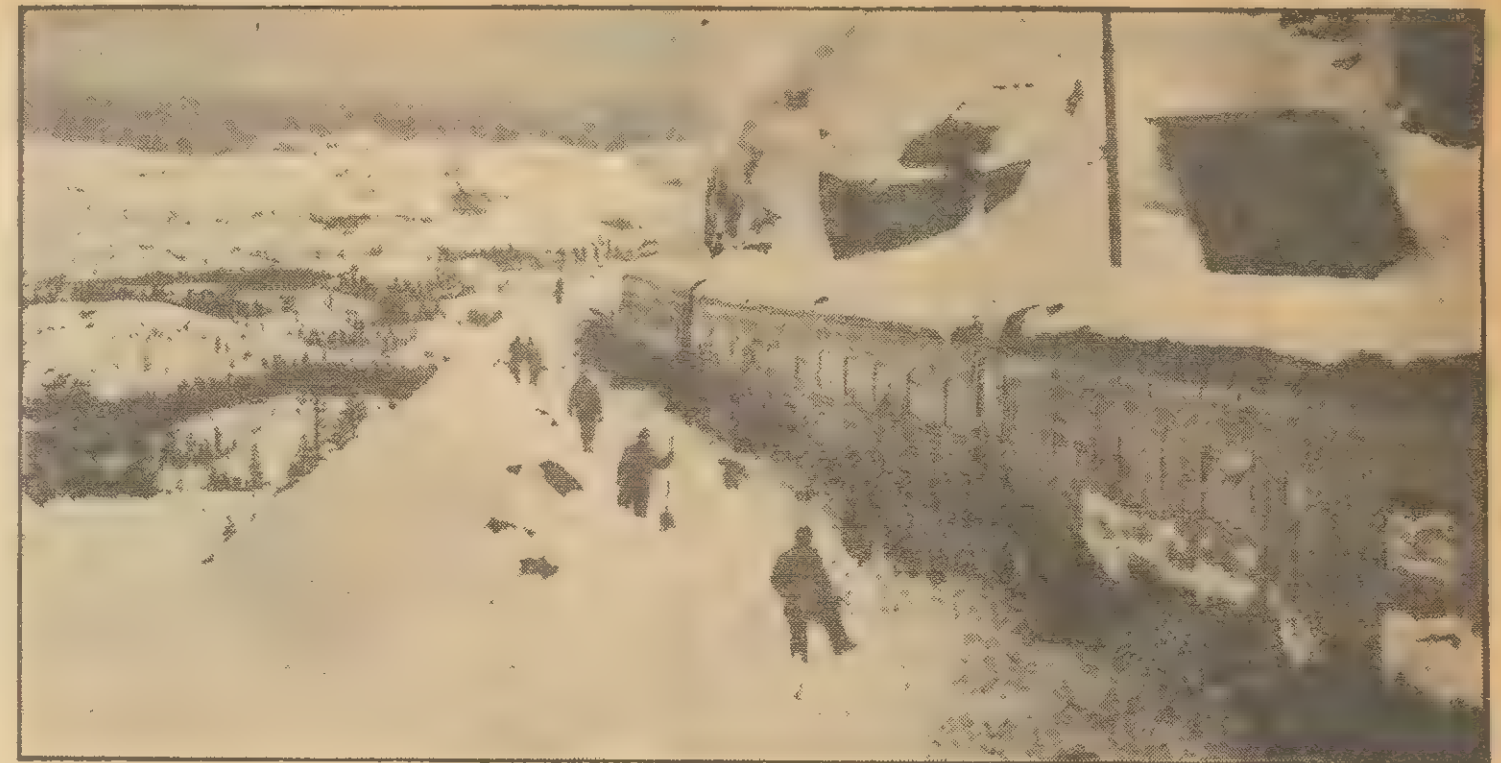
In Northern California fierce gales looped in from the southwest, uprooting trees, breaking windows, pelting the lowlands with barrages of rain, coating the mountains with snow. Just as the storm began to weaken, it was succeeded by another, roaring down the same pathway with even greater intensity. Behind this one came still another.

To the passengers on the City of San Francisco, the first inkling that something was wrong came when the



train was delayed in a blizzard for several hours east of the Sierra Nevada in Reno and chugged up the long switchbacks through the storm to Donner Summit 12 hours late. En route it passed the glacial lake where the Donner Party had been snowbound while trying to cross the pass by wagon train 106 years before.

AFTER emerging from the snowsheds at Norden, west of the summit, the locomotive, slowed by snow piling ahead of it on the track, nosed into a deep drift and stopped dead on a ledge sev-



THE 'CITY OF SAN FRANCISCO' UNDER ITS SIERRA BLANKET

eral hundred feet above a canyon near Yuba Gap. The time was 1 p. m. Sunday, January 13. Several hours later the conductor was reassuring impatient passengers that the snowplows were on the way to dig them out.

Travelers who had expected to be in San Francisco that morning to make plane and ship connections were scarcely mollified when they watched three other passenger trains creep by them on the adjacent track during the course of the afternoon.

As darkness came, most of the passengers resigned themselves to missing their San Francisco connections and figured they might as well relax and enjoy the adventure. They held a community sing in the lounge car, including an ironic chorus of "California, Here I Come," and made innumerable gags about the Donner Party.

Next morning there was less hilarity. The train had not moved an inch; the blizzard was still howling outside; and snow was piling deep around the windows. Breakfast rations were slim, and milk was available only for children.

Passengers fired at the crewmen questions to which there were no answers: "Where are the snowplows?" "Why don't they get us out of here?" "How long will the food last?" And there was always the unspoken query: What if they can't get us out?

But most passengers put the question out of their minds. After all, this was the 20th Century. Who ever heard of a modern train being buried in snow? Such a thing seemed about as plausible as an attack by Indians.

The passengers had no way of knowing that nearby Highway 40, like every other

pass across the Sierra, was closed by snow, that the railroad's snowplows from both directions had themselves bogged in massive drifts along the tracks and that the engineer of one of them had been killed by an avalanche.

Gradually, on that bleak snowy Monday in the canyon of the Yuba river, the train's water tanks went dry, batteries weakened and died, lights dimmed and went out, and worst of all, in car after car, the heat went off. Passengers wrapped themselves in all their clothes and blankets but still felt numbing cold creeping up from their feet.

THEY FELT something else, too—the sense of psychic shock and incredulity that strikes a person when it dawns on him that the kind of disaster he has read about happening to other people, in other places, at other times, is actually happening to him,—when he realizes that the smoothly functioning technological mechanism that maintains life under normal circumstances can be thrown out of gear by irrational acts of man or nature not anticipated by engineers and designers with their slide rules.

A crew of 30 Mexican section hands, who had been brought in just before the parallel track was closed down, worked outside in the blizzard trying to clear at least the vestibule windows of piled-up snow in order to prevent suffocation.

Monday night about eight o'clock a cheer went up along the train. A party of a dozen rescuers equipped with skis arrived on a couple of PG&E snow-cats, small tracked vehicles designed for deep snow, carrying 400 pounds of food—just as the train's supply was nearly exhausted.

Momentarily cheered by the arrival of the food, the passengers were bitterly disappointed to realize that they would have to spend at least another night on the train. The rescuers had no way of getting 221 stranded passengers and crewmen back through the storm to safety.

Late that night came the most grueling moments of the ordeal. Passengers on three of the cars passed out after inhaling deadly, odorless carbon-monoxide fumes



from plugged-up generators. After desperate work by a doctor and volunteer assistants, all the stricken passengers were revived, but most were still violently nauseated. To add to the general misery, the plumbing had frozen and the drains were not working.

TUESDAY morning the blizzard was still raging. In order to get fuel to cook the meager breakfast, cooks stoked the stoves with broken-up wooden pullman ladders.

That afternoon another party broke through to the train; it consisted of Chronicle reporter Art Hoppe and photographer Ken McLaughlin, who had floundered through the drifts of powder snow on skis—both of them novices on the boards—for two-and-a-half hours.

They found the air on the train foul and cold and dark. Occasionally for a few minutes the trainmen would kindle a lantern, and it would flicker in the darkness for a time before being ex-

tinguished to save oxygen.

The third night on the stranded train there was little rest for anyone.

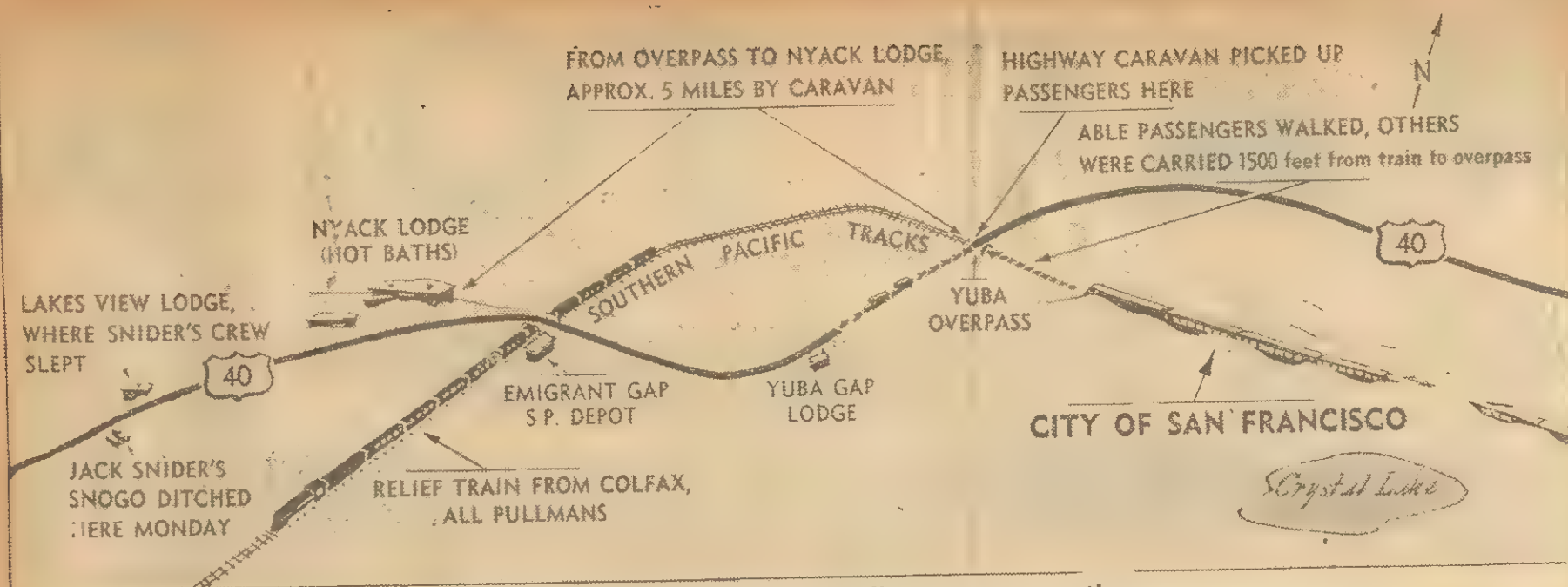
Sleepless passengers tried to keep themselves warm with thoughts of breakfast. A steward passed along the information that there were exactly two eggs left in the kitchen car, and imaginative passengers talked over ways of dividing two eggs among the 221 people aboard. But the riddle of the two eggs never had to be solved.

An hour before dawn, there was a commotion outside. This time it was caused by the best possible news. The blizzard had let up. Of several rescue parties trying to reach the train, the first to succeed was led by Jack Snider, foreman of the Yuba Gap Highway station, who had been able to plow a path along Highway 40 to a spot a quarter mile from the train. The Mexican section hands, who had kept the train from being buried, tramped down a path between the track and the highway.

Preceded by several litter cases, the passengers stumbled down through the snow to the road, where cars that followed Snider's plow shuttled them to ski resorts for food and warmth. The long siege was over.

Seven hundred miles to the northwest, off the mouth of the Columbia river, the last in the freak series of storms had blown itself out. The greatest attack of the elements in California's history was over, and the passengers on the City of San Francisco reached their destination only four days late.

Had just one more storm flailed down from Alaska, prolonging the blizzard, the story of the ill-fated train, like that of the Donner Party, might have ended differently.



Map shows the area of the streamliner rescue operation

Crystal Lake, 1941-51
 The streamliner rescue operation was a
 major effort in the history of the
 railroad industry. In 1941, a streamliner
 was derailed in the Crystal Lake area.
 The train was carrying a large number of
 passengers and crew. The accident was
 caused by a combination of factors, including
 a defective track and a failure of the
 train's brakes. The rescue operation was
 a major effort in the history of the
 railroad industry. It involved the use of
 a large number of men and horses to
 move the train and its passengers to safety.
 The operation was a success, and the
 train was able to continue its journey.
 The Crystal Lake area is now a popular
 destination for tourists. It is known for
 its beautiful scenery and its rich history.
 The streamliner rescue operation is a
 major part of the area's heritage.

Southern Pacific Company

65 Market St., San Francisco 5

D J RUSSELL
PRESIDENT

February 7, 1952.

Mr. T. W. Williamson,
4739 B Street,
Sacramento 19, California.

Dear Tom:

Further in connection with my letter of January 28 about the
"City of San Francisco" snowbound in the Sierra:

In another envelope I am sending you several of the pictures
dealing with this event. All of these, with exception of the one
in which Merle Jennings appears and the one showing a bulldozer
operating in a deep cut, were taken on January 16 when the storm sub-
sided and the passengers were removed from the train. I hope you
will find these of interest for your picture collection.

Sincerely,

D J Russell

Storm's Cost To SP Is Estimated At \$2,000,000

PORTLAND, Ore., Feb. 7.—
After last month's snowstorm
which marooned the stream-
liner City of San Francisco near
Douglas Pass cost the Southern
Pacific railroad \$2,000,000.
Donald J. Russell, president
of the company, made this esti-
mate of expenses during a
speech at a chamber of commerce dinner
speech.

Though Russell did not elab-
orate, officials said the loss of
revenue from the blocked line,
track clearing, passenger re-
moval and other costs went into
the total.



CITY OF SAN FRANCISCO SNOW BOARD JANUARY 1954

The Snowbound City of San Francisco

DATE PAGE
San Francisco Chronicle
Monday, Dec. 17, 1932



of the passengers and crew members wait for their deliverance from the icy coaches in which they spent three days and three nights



Their engines long since stilled by an exhausted fuel supply, power units of the streamliner stand with ice streaming down their sides





BLACK BUTTE 3PM 12/3/52 - OPPOSITE SECTION 9.125.

Over Top of Snow Shed Snow 14 foot deep



S. P. Snowplow Broke Its Arm Last Sunday

Feb. 19, 1937

The Southern Pacific snowplow was at work in the yard Sunday, clearing snow from the tracks, when just in front of the depot, a large casting which supports one of the spreader arms broke.

A call for help to the Diesel shop! Archibald gathered up his welding crew, hauled the electric welder to the scene of the breakdown and they went to work. In a little over two hours the snowplow was ready for service.

The Southern Pacific locomotive had been cut off and moved to the roundhouse. Air was lost from the spreader tanks and it was needed to move a pin before the welders could go to work. Just about this time the Western Pacific snowplow crew arrived in town and stopped within a foot of the spreader, so the boys just hooked an air hose to the front of the W. P. engine. S. P. Roadmaster Owens later saw W. P. Roadmaster Hollenbeck and thanked him for the air he had stolen, stating, "W. P. air even works in S. P. spreaders."

Two extra gangs of S. P. men, in charge of Tom Williamson and Dinty Ryan, the two first Section Bosses in Westwood, over 20 years ago, have been here for several days clearing the snow from the tracks and switches.

The Western Pacific freight train that was tied up here last Wednesday, left yesterday after the line was cleaned to Keddie. Western Pacific trains are now running on normal schedule.

The Southern Pacific passenger train missed three days due to heavy snow, but arrived on time Sunday and yesterday, which was the last day for a train as the Reno Highway is again open and mail, express and passengers will be brought in by truck and stage.

The Keddie stage, which was snowbound in Indian Valley last Thursday, arrived here last night by way of Portola. It is scheduled to leave for Keddie on its regular schedule tonight.

So, unless we get another heavy snowfall, traffic conditions are back to winter normal.



East Switch 1 corner Feb, 11th 1949



Leucostictus Spradley 3491 2nd Aug 1940



Spreader 4043 / Corvus Feb, 17th 1949



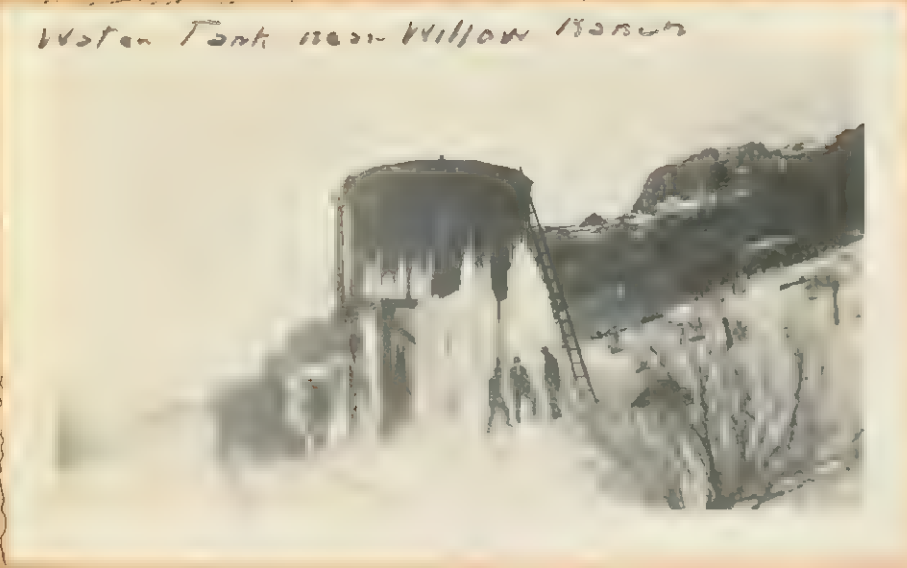
East of Reno



Malay Pass

The following information was obtained from the records of the Bureau of Census, Department of Commerce, Washington, D.C., dated January 10, 1968.

Water Tank near Willow Run



These photos were taken during the winter of 1911-12. The first photo shows the water tank near Willow Run. The second photo shows a group of people standing in a snowy field. The third photo shows a wide, flat, snowy landscape. The fourth photo shows a snowy field with some low-lying vegetation or structures visible on the right side. The fifth photo shows a large, dark, rounded object, possibly a tree or a large bush, in a snowy field. The sixth photo shows a snowy landscape with some trees and structures visible in the distance. The seventh photo shows a dark, rounded object, similar to the one in the previous image, in a snowy field. The eighth photo shows a snowy landscape with a small, dark structure or building visible in the distance.

1857-1858

1857-1858
1857-1858
1857-1858
1857-1858
1857-1858



Westwood California 1915



Westwood California 1915



Westwood Station 1915



Lumber Yard Westwood 1915



View from Window Westwood Section House



Westwood Section House 1915

Quake Hits The SP

Greatest emergency concentration of earth-moving equipment opens up SP line after heavy earthquake

WHEN one of the most severe earthquakes in years struck the San Joaquin Valley in California the Southern Pacific was particularly hard hit. Its entire line between Bakersfield and Mojave was knocked out. Track was damaged and four tunnels were made inoperative.

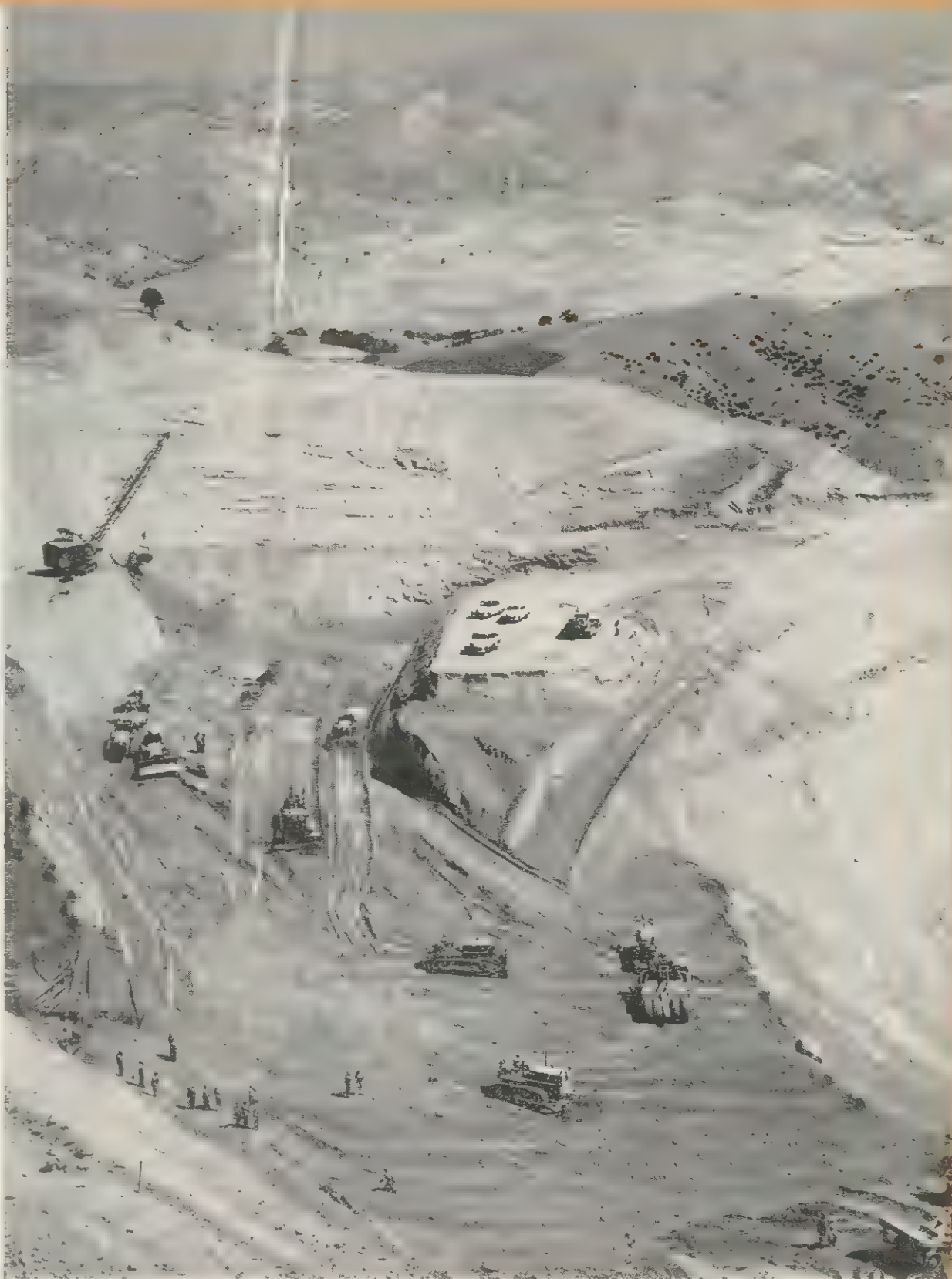
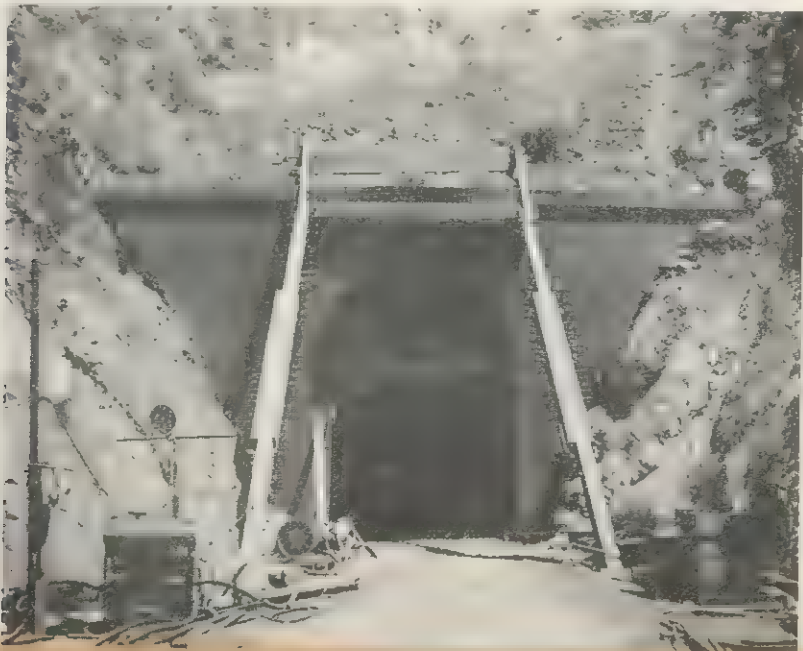
Before the earth had even stopped shaking, more than 1000 men were rushed to the four-mile area in which the earthquake was concentrated. Working in shifts around the clock and using more than 100 units of the largest type of earth moving equipment available, the men got the job done in record time. And so well was the job done that two subsequent earth tremors a month later destroyed block-square areas of Bakersfield but did no damage to the railroad.

The manner in which these men worked and the equipment they used shows dramatically how modern railroads nowadays can cope with floods, storms and quakes.

The Morrison-Knudson Construction Co. put on the job the greatest emergency concentration of earth-moving equipment ever assembled in the United States. It included 50 Caterpillar diesel tractors, 30 scrapers, two motor graders, a huge dragline excavator, rooters, and compressors. Santa Fe work gangs pitched in with the Southern Pacific work gangs to help complete the job.

While the San Joaquin Valley Line was out of service, freight traffic was diverted to the SP Coast Line. Because the Santa Fe also uses the Tehachapi line through joint user rights, the already heavily burdened alternate routes had to handle a good deal of diverted freight traffic, too. To help handle that load, the Santa Fe also loaned the SP locomotives and crews.

THOUGH the 1170 ft tunnel is cracked it can be salvaged. A "shoo fly" built around it required laying of 3200 ft of new track in extremely difficult terrain.

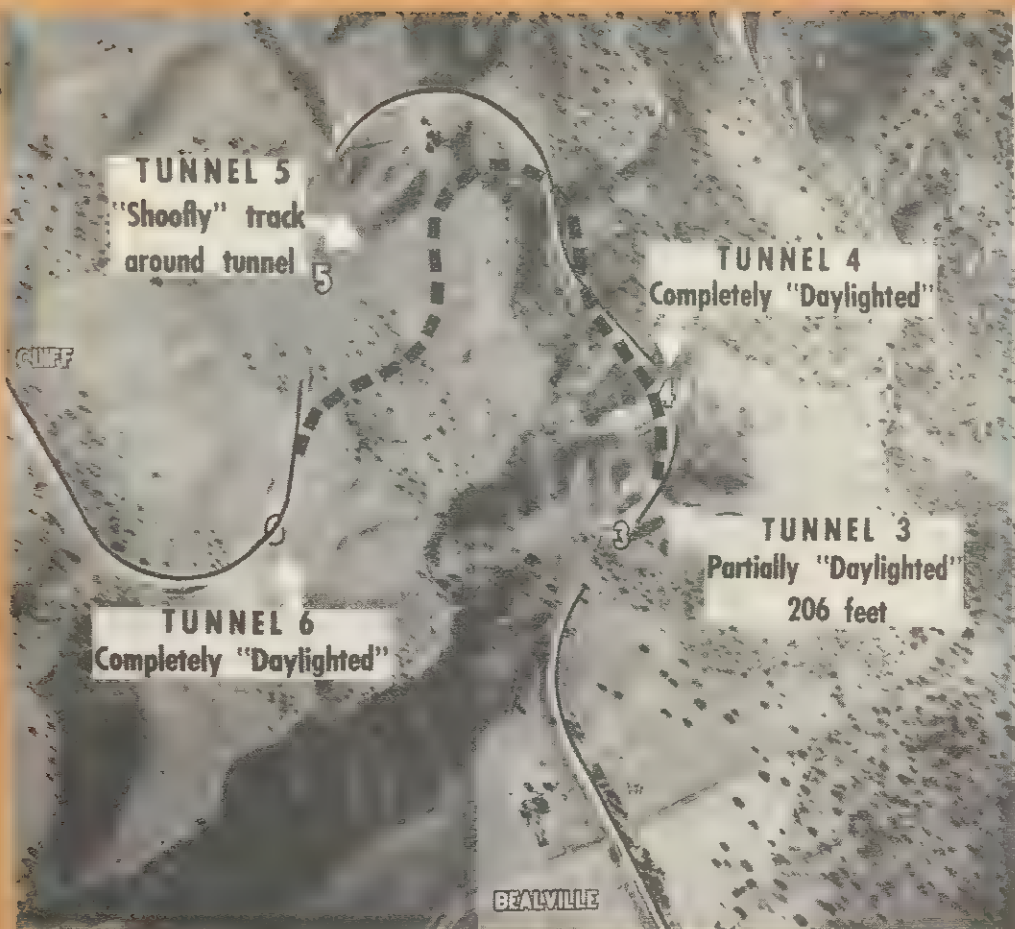


RATHER than repair damaged tunnels, entire mountain sides were cut open. Two former 334 ft and 360 ft

tunnels and 206 ft of a third tunnel were "daylighted." In doing the job they moved 1,250,000 cu yd of earth.

EARTHMOVERS carved deep to "daylight" this tunnel after damaged by the earthquake. First task was to carve out three miles of access roadway to the tunnels.





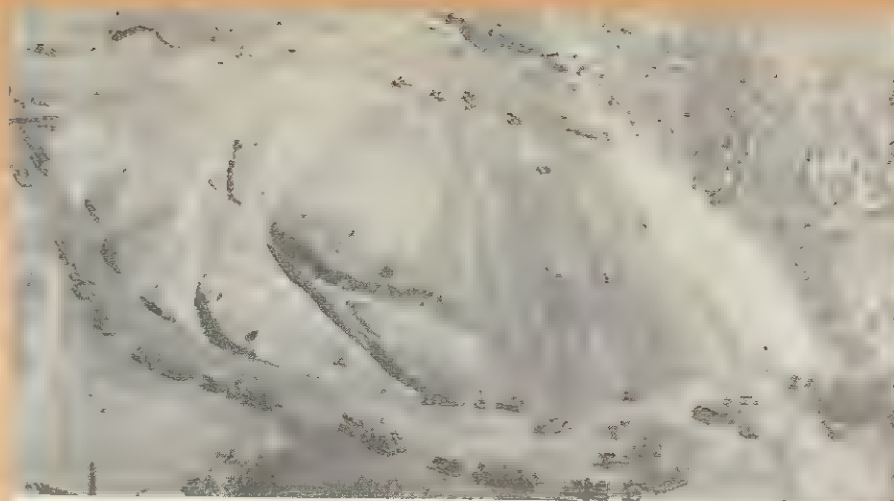
TEHACHAPI CLEAN-UP

(Continued)

THE white line snaking through the above air photo traces the route of SP's line over the Tehachapi mountains in the area hardest hit by the quake. It shows the location of the four tunnels and where the shoo-fly was built to skirt Tunnel 5, longest of the four, and which required more repair work than the others. On the opposite page, picture at upper left shows new lining being sprayed in tunnel. Next is inspection party of President D. J. Russell, Head

Photographer Steve Edwards, Vice Presidents J. W. Corbett and D. J. McGanney. Edwards' pictures played a vital part in determining extent of damage in tunnels. In center, left, are (l-r) Joe Hutchins, asst. genl. supvr., work equipment; R. W. Putnam, engr., MofW&S; E. E. Mayo, chief engineer. At right is W. M. Jackle, asst. engr., MofW&S, at radio telephone. In inset are J. J. O'Keefe, roadmaster, Tehachapi, and C. E. Neal, gen'l. track supvr. At right is one of a number of SP survey gangs off San Joaquin, Los Angeles, Sacramento and Western divisions.

SP Bulletin



TEHACHAPI CLEAN-UP

(Continued)

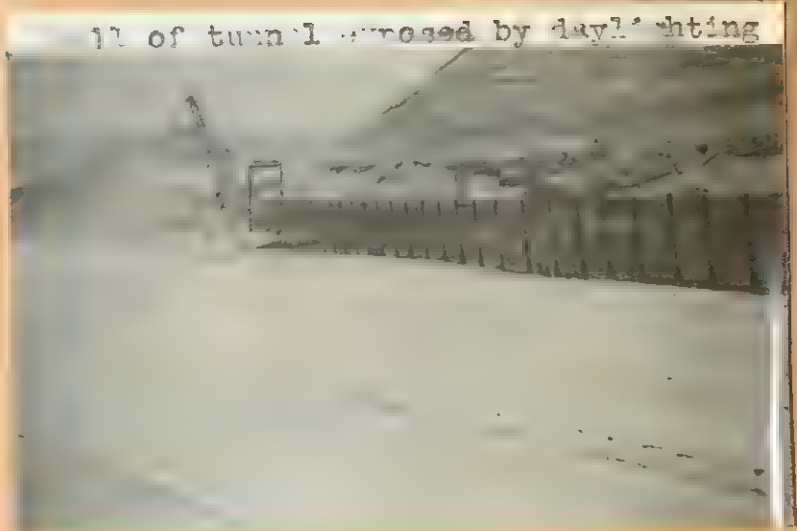
MORRISON-KNUDSEN in 150 hours moved over 250,000 cubic yards of earth from two giant cuts to make new fill on curve between Tunnels 4 and 5. Repairs to Tunnel 5 will take three to four months to complete. The finished fill (below) measures 460 ft. across at bottom, 50 ft. across at top,

and is 132 ft. high. Picture below was taken as operation resumed on August 15, just 9½ days after first shovelful of earth was poured into fill. Picture at upper left, opposite page, shows entrance to Tunnel 3 after 206 ft. had been "daylighted." At right, repairs are made to a tunnel portal. Center pictures show earth being cut away from Tunnel 6 and portal being demolished.



Large fill and temporary track, completed in 9½ days as part of the job of restoring SP's earthquake-shaken line over the Tehachapi Mountains. This "shoo-fly" was used August 15 to December 16 while a 1,170-foot tunnel through the mountain to the right was being repaired.

Tehachapi Earthquake
 Joe Hutchins
 Wm Jaekle
 Santa Fe man
 F. L. Monroe
 Mr Vince
 R. W. Putman
 R. B. Chapman
 C. Neal



11 of tunnel exposed by daylighting



R. B. Chapman



Joe Hutchins & Wm Jaekle

Putman & Jaekle working on wall
 break in tunnel wall of tunnel



Wm Jaekle & Joe Hutchins



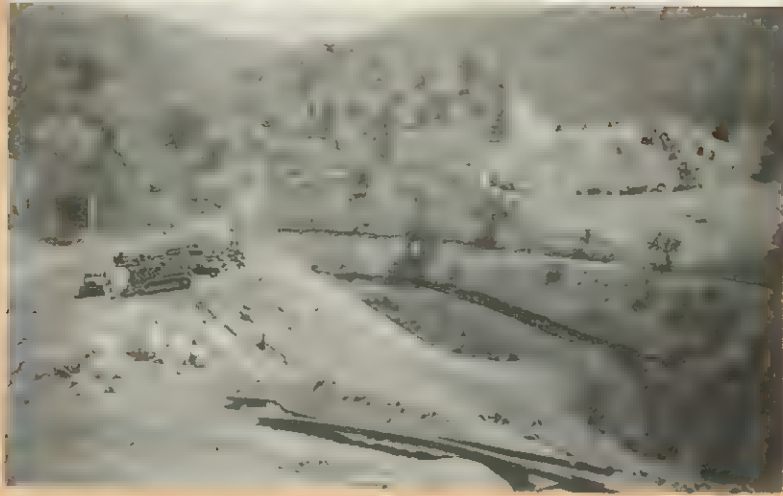
Putman, Mayo & Jaekle

TEHACHAPI EARTQUAKE
August 1952

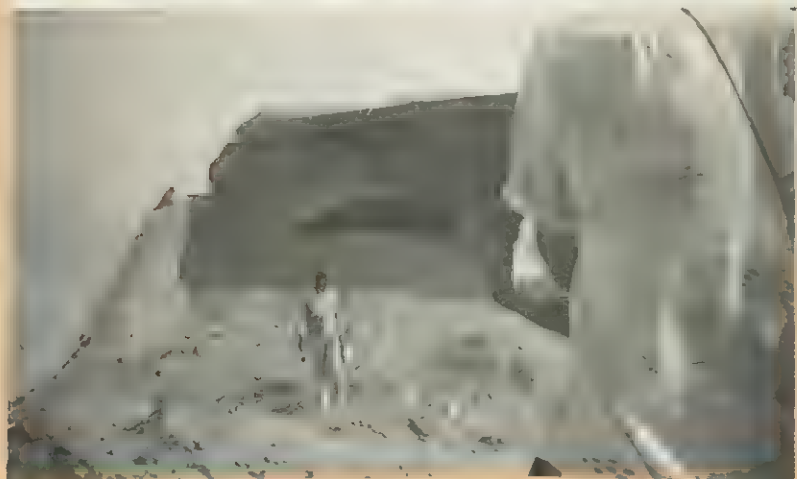
Daylight tunnel #6 Note exposed wall



East portal tunnel #5



Jackle east end tunnel #6



Coal at portal Tunnel #4



Port 1 #5. Exposed core of tunnel 2
being daylighted



East port #5. Note
slip in track due to
distance between tunnels
being shortened five feet
by action of earthquake

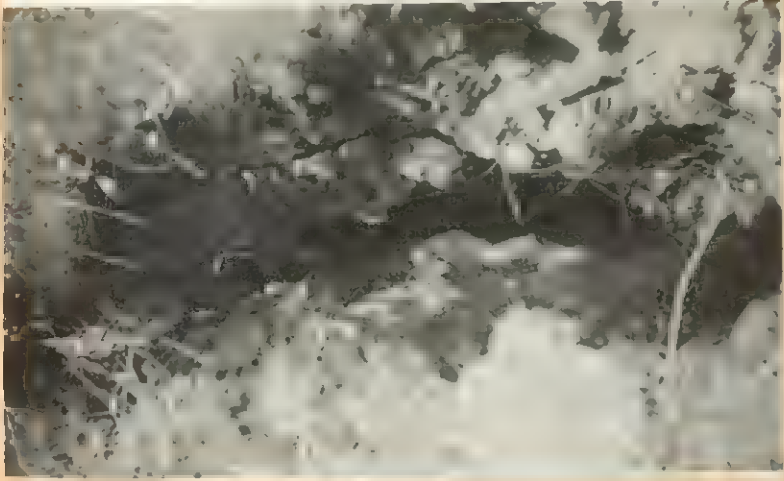


Detour road 1

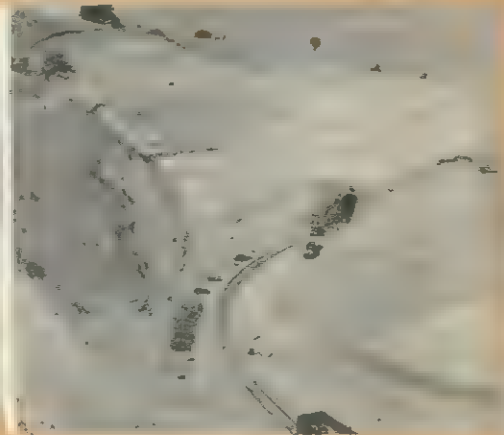
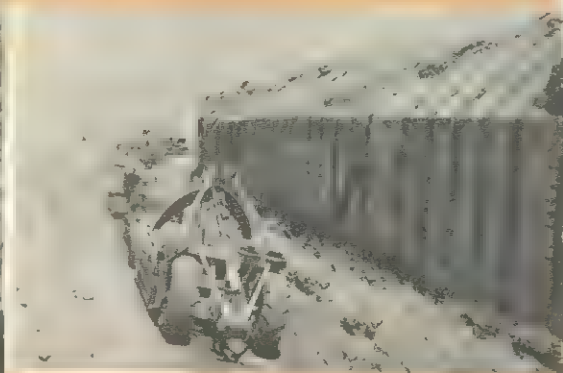
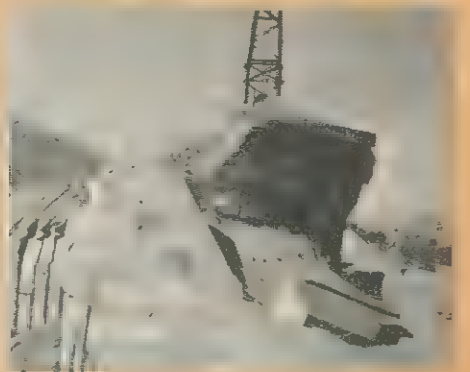
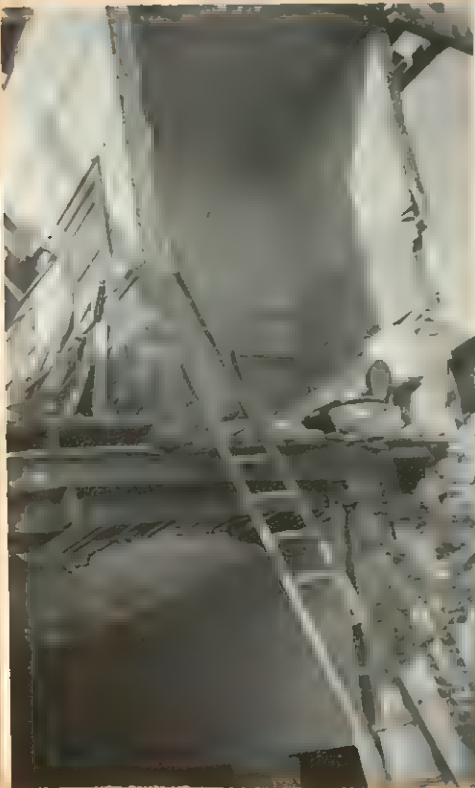


TEHACHAPI EARTHQUAKE
August 1952

Crack in ground caused by earthquake



Bakersfield





MT. LASSEN BLEW 10,000 FEET IN THE AIR

WHERE MOUNT LASSEN blew her top (May 30, 1914, fire and brimstone poured forth) and Jay Gibson learned to mix blue blazers. Mono Lake did likewise a few million years ago, only more completely, forming Mono County's high mountains of frothy pumice and basalt post piles.

Snow Scene at Crystal Lake Winter 1928



Rotary Working Near Crystal Lake 1943





Derailement at Sutherline, Portland Division 1943
Necessary to build new track to salvage engine



Derailement at Sutherlin on Portland Division 1943



Photo 57 - 100 ft. 1944 - Lanner - west of Carax -





Hafed Aug 14th 1917



Head-on Collision, Hafed Nevada Aug 14-17
Account local freight on short time.

Extra 2516 East
Engineer F. Guise
Fireman Griffin (Killed)
Conductor C.A. Swartz

Train 311, Engine 1743
Engineer Rassmussen (Killed)
Fireman Zari
Conductor Bob Ewing
Brakeman Miltenburger
Student McElwee
Brakeman House (Killed)



Derailment Train #25 May 4th, 1930 near Mina
Account washout. Engineer Patsy Devine crushed
under engine when it overturned

WRECK.

Cloud Burst Breaks Willow Creek Culvert.

Six Lives Lost and \$100,000 Damage to Property.

Measured by loss of life and property the greatest train wreck that ever happened on the Central Pacific occurred 2 miles east of Mill City Sunday morning at 5:20 o'clock.

The limited passenger train No. 2 left here on time but the great storms on the Humboldt Basin caused several small washouts which delayed the train and it was late at Mill City.

Train orders were received at this station and the train pulled out. It is safe to say it was soon speeding along at 50 miles per hour. Two miles east of Mill City, at a point known as Willow Creek fill, a cloudburst had washed out the ground from under the track for a space of 60 feet in length and 35 feet in depth, and into this plunged the swiftly moving train.

The rails and ties spanned the space and under such a headway the track would look safe to the locomotive engineer.

There was a jar and in a second's time the lives of 6 persons went out as the snuffing of a candle, and thousands of dollars worth of property were lost.

That the train was moving at the rate of 50 miles an hour all railroad experts agree and it was not unusual speed for the flyer at that point and for miles on either side. The rails weigh 90 pounds to the foot, the ties are new and fitted with the latest appliances, the roadbed is of gravel, the country level and the track straight.

The position of the wrecked train also showed the speed. The engine plunged clear across the 60 feet and onto the opposite bank so far that the drivers all cleared the chasm. Only the trucks of the cars and engine tender dropped into the swollen stream.

Daylight showed a strange scene. The engine, 1423, inclined on the east bank as if struggling to go ahead. The headlight was gone, the smoke stack was out in the country, the bell was broken clean in the middle with the rim shining on the track ahead. The tender was jammed into the engine and the cab was a mass of splinters.

The mail car, next the engine in the train, was rent in three pieces. When the accident happened this car shot forward, the left end traveled to the engine to the left and traveled in the air. In its flight it smashed and carried away the engine cab and everything above the engine boiler. The sides of the car spread out from the floor, the roof was torn away in entirety and turned completely over for its whole length.

Next to the mail car was the buffet and next to the buffet the Pullman car, El Oro. Railroad men had been seen telegraphing as the train and El Oro showed. The buffet was driven into the sleeper a distance of 100 feet and then stopped. The Pullman car was driven into the buffet and the buffet was driven into the sleeper a distance of 100 feet and then stopped. The Pullman car was driven into the buffet and the buffet was driven into the sleeper a distance of 100 feet and then stopped.

Arriving at the scene one saw a young river of muddy water rushing along with the speed of a millrace and swirling over car wheels, trucks, twisted iron and splintered wood. Several hundred men lined the banks of the fill already at work building a temporary track that traffic might be resumed at the earliest moment. The wreckers fixing huge chains and ropes to engine and cars, digging holes and planting "dead men" for pulley leverage, bosses flying this way and that, all flanked by the desolate looking country. The shattered mail car in the sagebrush. The engine stripped on top of its beauty, nose buried in sand, tender top a mass of twisted iron jammed against the boiler head with the tin roof of the engine cab plastered to it. The hands and legs of the unfortunate men imprisoned there sticking out appealingly and sending shivers of horror through the spectators. The east end of the buffet jammed against the engine and resting on the water tank. The buffet telescoped with the sleeper, engine, buffet and sleeper connected and the cars suspended in midair across the chasm as though supported by a bridge. It was a wonderful sight and not soon to be forgotten. It was hard to realize there was nothing but the immense force which drove them together to hold those heavy cars as suspended.

The mass of wreckage next the boilerhead of the engine was so dense that only parts of the bodies Fireman C. L. Whittaker and the unknown could be seen. Whittaker's body was bent over, head to the west, one hand free and in plain sight. He must have been putting in a fire at the time as the wreckage pinned him between the deck and head of the boiler, and he was turned slightly to the north by the great mass that destroyed his life. He never knew that he was hurt. Better that than he should suffer excruciating tortures in that hell hole.

The body of an unknown man rested on top of the boilerhead and every bone in that body was broken. The limbs came away and he was literally cooked. He was a youth of 18, blonde, weight 140 pounds. Nothing was found upon the person by which he could be identified.

The body of another unknown man is in the stream, presumably under trucks and other heavy wreckage. It may not be recovered.

In the sleeper, El Oro, which was telescoped with the buffet were Adolph Bessinger, wife and daughter. Mr. and Mrs. Bessinger occupied berth No. 10, pected.

Mrs. Bessinger the lower in the drawing room. The Southern Pacific Company as the accident was reported, got the upper in the drawing room. The mother and father were killed instantly. The daughter escaped with slight injuries. The daughter escaped with slight injuries. The daughter escaped with slight injuries.

The daughter escaped with slight injuries. The daughter escaped with slight injuries. The daughter escaped with slight injuries. The daughter escaped with slight injuries. The daughter escaped with slight injuries.

room. He stayed with his car to watch it yesterday until the wreckers ditched it, when he went to Oakland. He did not complain of being hurt but of the shock. To the reporter he said one such accident was enough for him.

Engineer George Abbey was at first reported killed and the shock to his sick wife nearly killed her. It is strange that such reports are allowed to go out until verified. It frequently happens and a stop should be put to it.

Engineer Abbey's story is that he received orders at Mill City. He climbed on the engine and pulled out. Everything looked well and he "was soon going at a good clip." He wanted to look at his orders again and did so. Putting them away he was looking ahead when he felt himself falling. Steam rushed into his face and he quickly grabbed his coat and wrapped it about his head to save himself from being scalded. His left foot was caught, but by exerting all his strength the shoe was torn from its sole and his foot was released. He fell again, it seemed to him 30 feet and landed in mud. He knew he was in a wreck, was afraid of the engine coming after him and crushing him and crawled away from the roaring water and the engine. He heard the mail clerks shouting to each other and hollered for help. Then must have come oblivion for a time, for he found himself alongside a fire and Japanese section hands around him. The cold was bitter and he suffered from his left foot which was badly lacerated. With his suffering it seemed an age until friends reached him and an eternity until he felt he was far enough away from the engine so it could not crush him.

That the mail clerks, Schuyler and Cavin, escaped death is a miracle, being thrown 75 feet as they were. The worst injury was a broken right leg for Schuyler. They will not care to have the experience repeated. There was nothing else in the car not smashed into small pieces.

Brakeman J. J. Reeves jumped through the window of the buffet into the steam 35 feet below and then did not get hurt much, body bruises. Fate plays strange pranks.

Conductor H. E. Markle received a scalp wound and a few bruises.

No. 4 was only a few minutes behind No. 2 and a kind providence left the rear brakeman uninjured so he could flag them and avert a collision. Every light on No. 2 went out when she went into the ditch and there was nothing to stop No. 4 from colliding with No. 2 and the disaster would have been unparalleled in the annals of railroading. The brakeman is deserving of promotion for not getting rattled.

The local lodge of the Order of Firemen sent a committee, J. G. Driscoll, George Sayers and Tom Bullis, to give every attention to Whittaker's remains and the duty was well performed. Assistant Master Mechanic

Pratt used every means in his power to get the body out as soon as possible and did so much sooner than was expected.

The Southern Pacific Company as the accident was reported, got the upper in the drawing room. The mother and father were killed instantly. The daughter escaped with slight injuries. The daughter escaped with slight injuries. The daughter escaped with slight injuries.

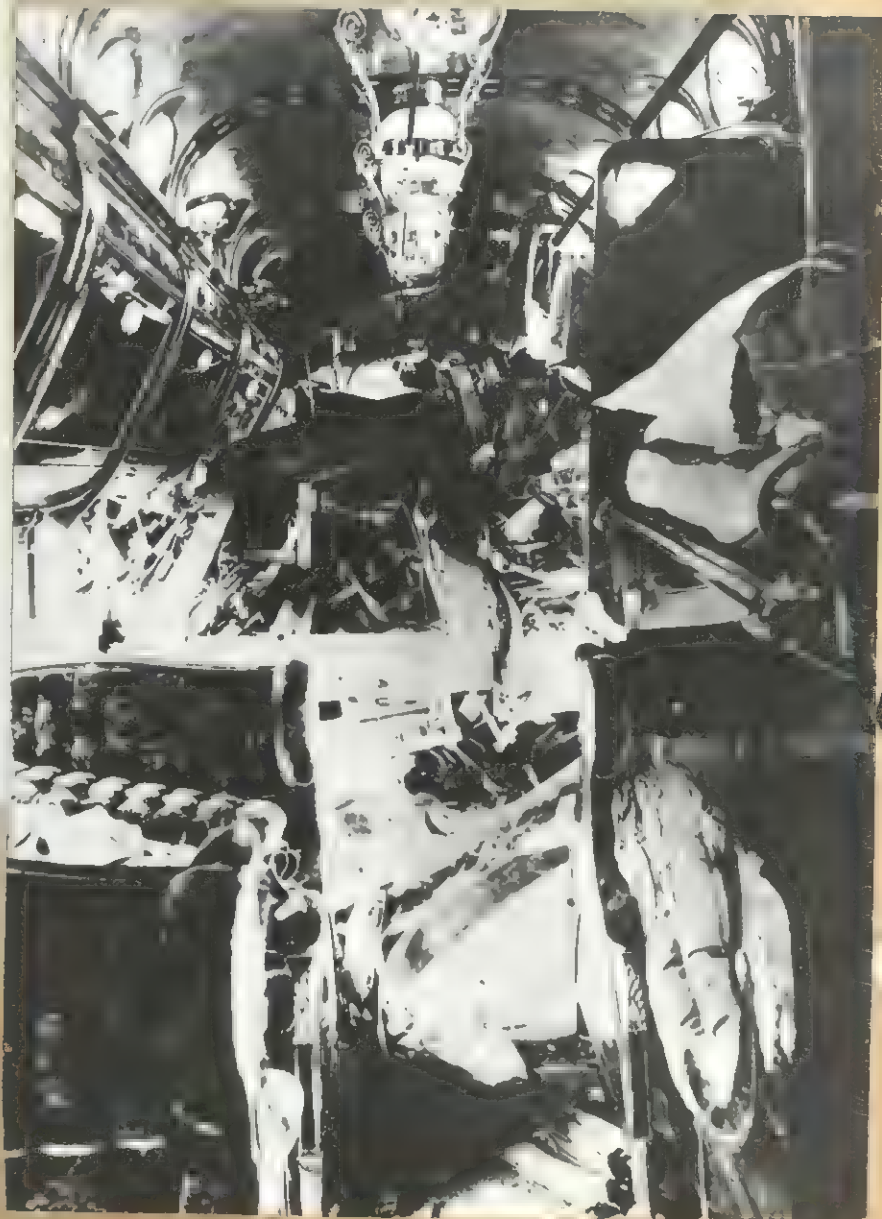
The daughter escaped with slight injuries. The daughter escaped with slight injuries. The daughter escaped with slight injuries. The daughter escaped with slight injuries. The daughter escaped with slight injuries.

Kistler and a trained nurse. The company has spared no expense to do everything it could in respect to the dead and to alleviate the suffering of the wounded.

The Willow Creek culvert was built in '69 and for 32 years gave no trouble and easily carried away the water there. The reporter went far up the hill and is satisfied a cloudburst caused the trouble, a source beyond the power of people or corporations to control, an act of Providence whose ways are past finding out.

Asst. Master Mechanic Pratt is giving personal supervision of clearing away the wreckage. The engine was stripped and blocked up. The problem was to ditch the heavy buffet and sleeper locked together by such terrible force and tear them away from the engine. Immense rope and tackle were used. The boys from Wadsworth were in their element. Ropes were fastened to one end of the sleeper and one end of the buffet.

Bob Arthur signaled "go ahead." The strain on the ropes reduced their diameter a third and people held their breath. There was a crash and slowly and grandly the cars turned. Roof and sides of the sleeper opened and it seemed a thousand mirrors flashed: the upholstery, walls, and fittings played back a myriam of color, when in another instant the tons of cars and the thousands of dollars they cost came crash to earth sending sprays of muddy water splashing on the spectators a hundred feet away.

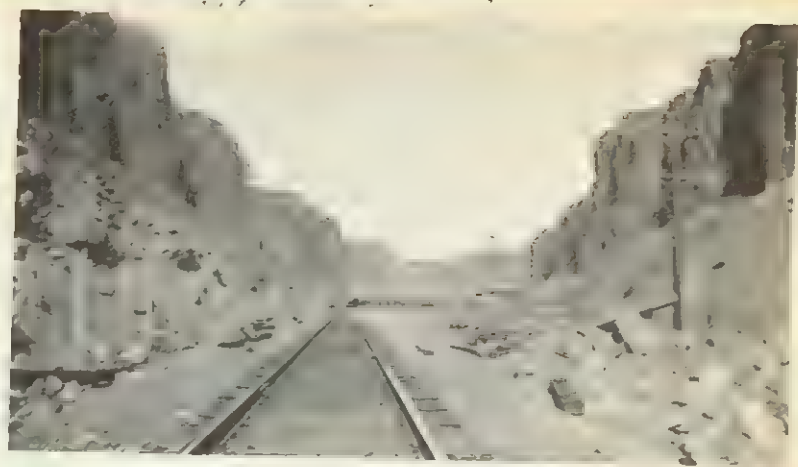
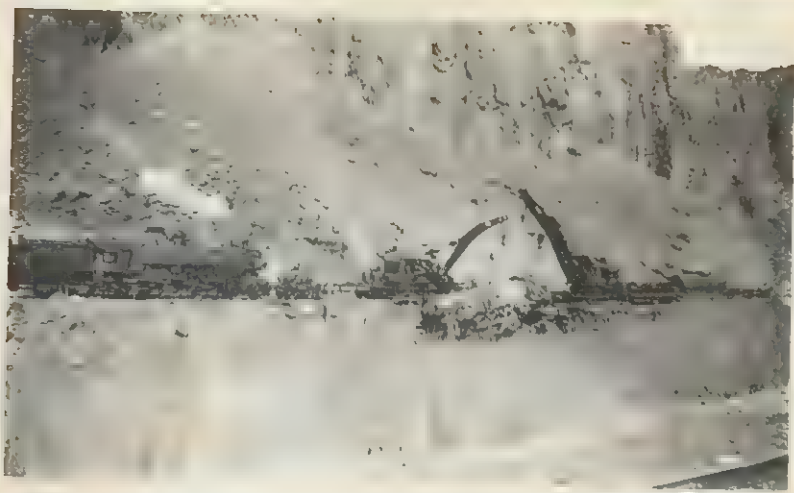




Mill City Wreck Feby 11th 1901
 Train #2 Engineer Geo Abbey
 Fireman Clarence Whittaker (killed)
 Mr & Mrs Bessinger, Passengers (Killed)
 Two Tresspasserz on blind baggage (Killed)
 Derailment due to wash-out

Parliament at Hill City Feb'y 11th 1901
Geo Abbey Engineer
Charles Witterker, Fireman (Killed)
Two Passengers Killed
Train wrecked due to washout





S.P. #9 in the D-River - Rapids



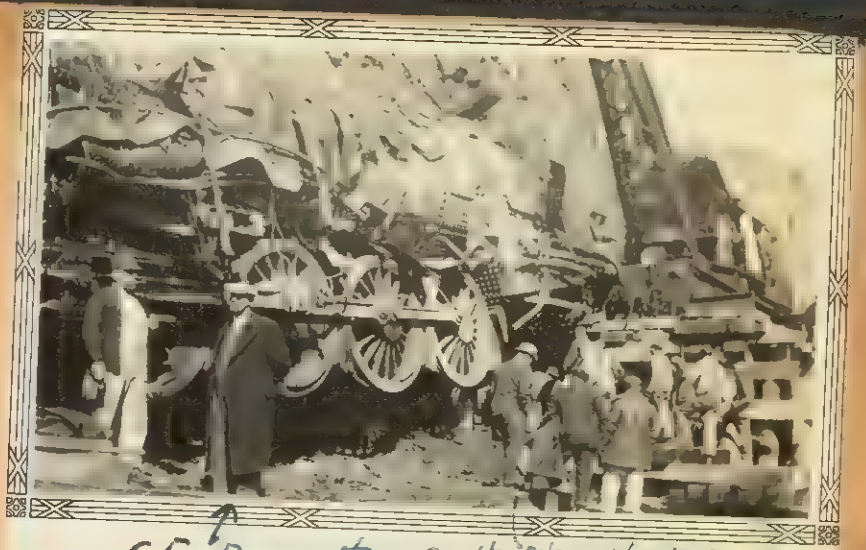
P. 100 -



Mail Train running as 1st 21
February 27th 1937 struck small
boulder at Quarry switch Palisade
derailing engine 4373 which ran over
bank into Huron River. Engineer
knocked unconscious but fireman
managed to lift him out through
ventilator in roof of cab before
engine turned on side. Engine was
raised after working for 2 out
with two men in the cab.



Spark Pistol



C.F. Donahue-Supt Otis Week-Union



Locomotive Lifted From Humboldt After Much Toil

SPARKS, March 8. After a week's labor, the Southern Pacific company wire king crews have lifted the huge locomotive from its water grave in the Humboldt river, where it had been since it was derailed February 27.

The badly damaged locomotive is now in the Sparks yards waiting to be repaired. The crew used cranes and huge cables attempting to raise the engine, and at one time had it standing on one end ready to move it from the river, but it fell back into the river again.

Saturday a 300-ton crane from Ogden was taken to the scene of the accident and succeeded in raising the engine. The engine was pulling the first section of No. 21, a mail train, westward on February 27 when a large boulder on the tracks derailed the train. It plunged into the river and four men, the fireman, engineer and two mail clerks, were slightly injured.

February 27th 1937 engine on 1st #21 was derailed at Palisade Quarry switch account striking boulder about 18" in diameter which lodged under engine at switch derailing engine which jumped over embankment landing in bed of Humboldt River right side up. Engineer knocked unconscious but fireman managed to drag him out of top of cab before it turned over.

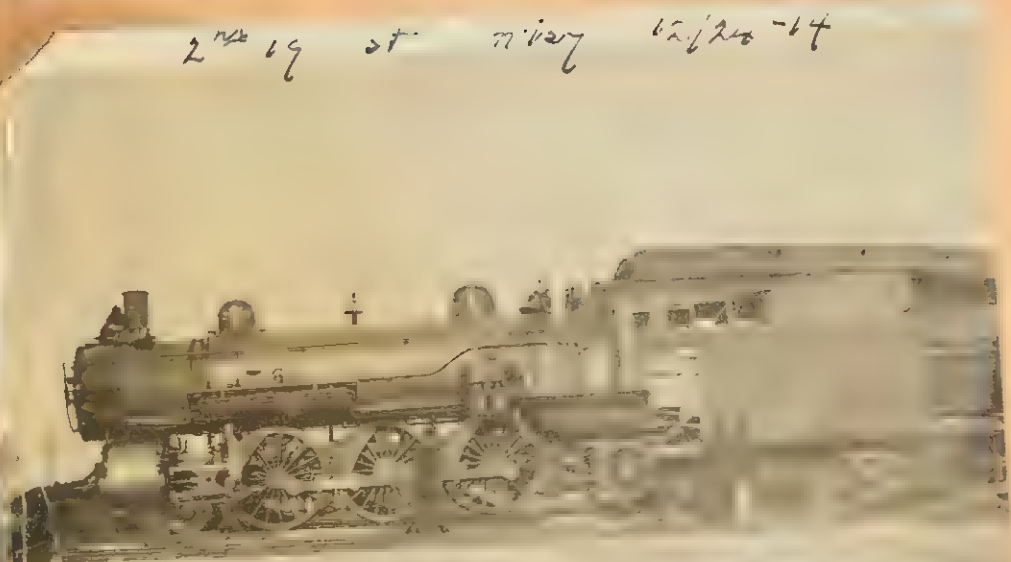
2nd 19 - 1000000 12/24-64



1st 19 Observation Co - 1000000 12/24-64



2nd 19 at 1000000 12/24-64



2nd 19 1000000 12/24-64



Rear End of 1st 19
at 1000000 12/24-64
after Rear End Collision.





From a high angle, this is the derailed big train and nearby tracks. Photos by Wilson, G.

McClatchy Newspapers Service
 AUBURN, Placer Co. —
 Southern Pacific trains were rolling on schedule over the Sierra today with raw gashes in the trackbed and overturned cars as the reminder of the violent derailment which mercifully claimed no serious casualties.

The estimated 196 passengers of the westbound streamliner City of San Francisco apparently suffered nothing more serious than a few cuts and bruises in the mishap shortly before 9 AM yesterday.

A dragging steam fitting on the first car behind the four diesel power plant was for sending the mid-section of the 17 car train screeching from its steel path.

The accident occurred on a double section of track about two miles west of Emigrant Gap in Placer County. The site is a few miles west of where the streamliner and 221 passengers were snowbound for six days in 1952.

Mrs. Roberta Duling, about 55, of Elyria, Ohio, traveling west to visit her son in San Francisco for the holidays, was stricken with an apparent heart attack and died soon after the derailment. She was a passenger in the rear section of the train which did not leave the rails.

Section Reopened

A repair crew from Roseville, Placer County, had the eastbound section of tracks open for traffic late yesterday. Workers stayed on the job until 3:15 AM today when the westbound track was opened.

An SP spokesman said several of the overturned baggage and mail cars still are lying by the side of the track. Repair crews, aided by a huge crane, resumed work this morning to get the cars back on the tracks.

Witnesses credited the relatively low speed — about 30 miles an hour and the fact the cars strewn about most violently were not passenger cars — with keeping the casualty toll so low.

Two cars were thrown onto their sides, two veered to a stop at nearly right angles to the track but remained upright. A fifth car left the tracks only a short distance, taking with it the lone passenger car involved.

Felt Light Bump

Travelers in the cars behind felt only a slight bumping as the leading cars tore up hundreds of feet of track.

The passengers and crew were hauled backward in the morning and taken to their destinations.

See Derailment, page D1

Derailement of City of San Francisco near Emigrant Gap



The Southern Pacific's "big hook" moved in fact to lift the tumbled cars from the railroad right of way.
 SACRAMENTO, CALIFORNIA, THURSDAY, DECEMBER 10, 1964 Page D1 | —



The derailed cars of the Southern Pacific train at San Francisco Bay.

SABOTAGED STREAMLINER AS SEEN FROM PLANE



AERIAL VIEW OF CITY OF SAN FRANCISCO AFTER DERAILMENT AND WRECK ON DESERT
The First Three Cars at Bottom of Picture Are the Three Units of the Powerful Locomotive.

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VOL. CLXXI, NO. 45

CC

SAN FRANCISCO, MONDAY

21 DEAD, 65 IN S. F. STREET WRECKED

August 14, 1939

Coroner's Jury Reveals Evidence of Sabotage

Members of Probe Group Cite
Mass of Proof Leading
To Verdict on Nevada Wreck

The chain of evidence by which the Beowawe coroner's jury came to its conclusion that the wreck resulted from sabotage was outlined as follows Sunday by Scott Harris and Herschel D. Smyth, who with J. L. Byington composed the jury:

1. The inside spikes along the 39-foot rail had been pulled—not torn—from their position, apparently in order that the rail might be moved inside.

2. Two spikes were driven into the end tie on the outside of the rail four inches inside from where they had been pulled, evidently to hold the rail in its new place. That they had been pulled, not torn, was evidenced by the clean scar.

3. The rail was misplaced toward the inside, rather than to the outside, where it would have been pushed had the misplacement resulted from centrifugal force.

4. A nut on an angle bar bolt was found near the wreck, its threads showing that it had been unscrewed, not torn loose.

5. Some of the spikes that had been removed were found, without scars to indicate they had been torn from place.

6. The corner of the rail that had been moved in was crushed, just as it would have been had the train been struck squarely on the end.

7. A tumbleweed which may have been the one Engineer Hecox

had said was placed carefully over the break was found nearby. It was green and had been pulled up by the roots.

8. The spot chosen was ideal for sabotage. It was on the outside track on a curve just before a bridge, which under normal conditions would have directed the entire train into the river. Had not the traction engine caught on the rail and held the motor units on the road bed, the saboteur's designs might have been fulfilled.

Mr. Smith said the jury was sworn in about 1 a. m. (P. S. T.) under Coroner Roy S. Harris, and reached its decision about 7:30 a. m. He said the investigation of the evidence was carried on without prompting by railroad officials or employees.

"It's as plain as the nose on your face that it was sabotage," Smith commented.

Mr. Byington is foreman and Scott Harris an employee of a dude ranch at Beowawe. Mr. Smyth is an advanced student of paleontology at St. Mary's college, California, home for the summer.

WESTERN POLICE HUNT SABOTEUR IN WRECK OF NEW STREAMLINER

G-men and railroad police combed western States last week for the murderer of 23 people, the skilful saboteur who on the night of Aug. 12 moved a rail section on Southern Pacific's tracks east of Reno, Nev., and sent the westbound super-streamliner *City of San Francisco* hurtling to destruction in a Humboldt River canyon. So artfully had the agent done his work that contact on the block signal cable between the tracks was unbroken (right), the fatal displacement concealed by tumbleweed from view. At 60 m.p.h. the *City of San Francisco* tore into the steel-beamed bridge. Seven cars plunged to the river bed below, crumpled like pasteboard cartons. Of the 23 killed, twelve were employees, eleven passengers. Injured: 114.

In Washington the ICC at once began studying the nation's first great all-streamliner wreck. Railroad men hoped the tragedy might illuminate the question: which affords greater passenger protection, old-style 80-ton plated cars or new aluminum alloy and chrome-steel types? Advocates of the latter cited the great tensile strength of new light alloys, the ability of lightweight stock to halt quickly without shock. Others declared that in the wild snap-the-whip of the derailed cars at the Humboldt River, old-type heavy stock would have suffered less in contact with the bridge. Many held that in either case the margin of protection did not vary more than 10%.

TR A

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Examiner
the Bailies

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CURSE SEEMS
TO SEAL LOST
CITY OF BIBLE

Isiah defies excavators
seeking records to reveal
Scriptural truths.

IN NEXT SUNDAY'S
EXAMINER

Y, AUGUST 14, 1939—24 PAGES

DAILY 5 CENTS, SUNDAY 10 CENTS

DAILY AND SUNDAY
PER MONTH, \$1.50

5 INJURED REAMLINER; BY MANIAC!

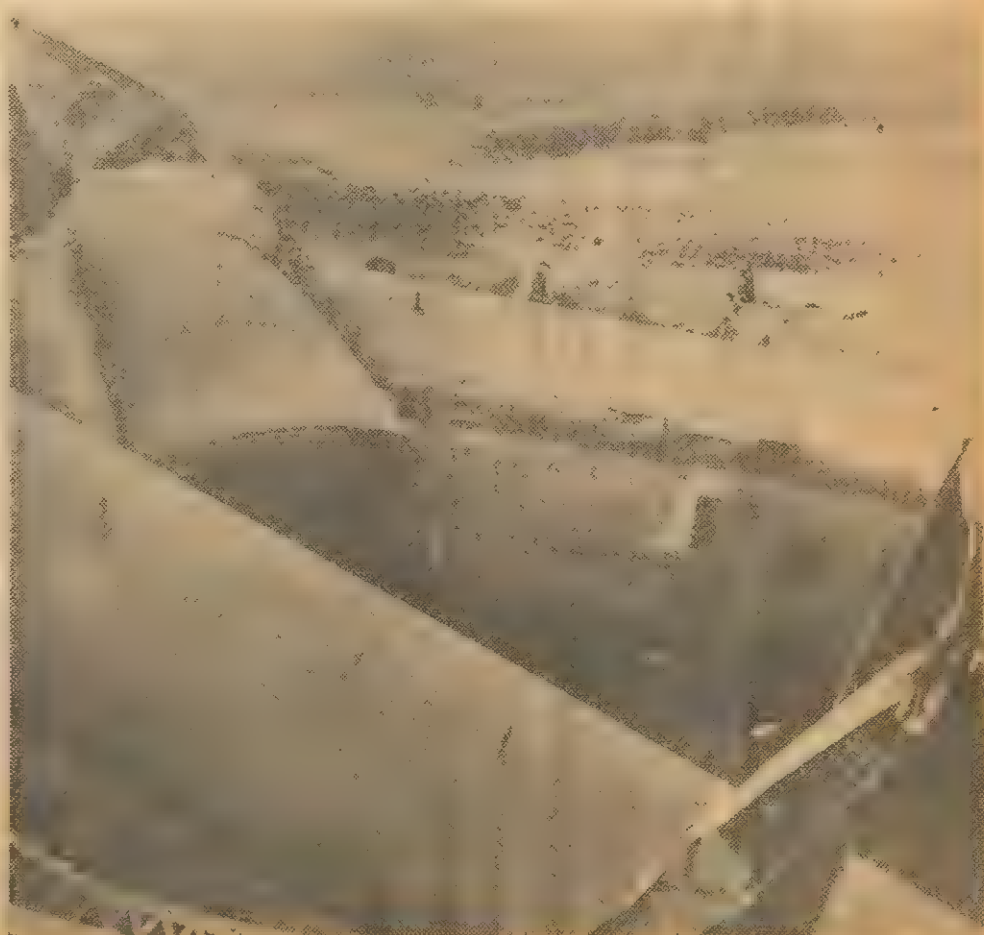
lay Morning

The Salt Lake Tribune

One Moment Swift and Powerful—Then the Crash and This



the pride of the Southern Pacific railroad, the "City of San Francisco" is shown before the wreck as it



crossed Great Salt lake on one of its regular runs, and after a derailment sent it through a bridge and made it

a broken, twisted mass of steel. The high-ran on a schedule of five trips each month.

**Sabotage
Results**

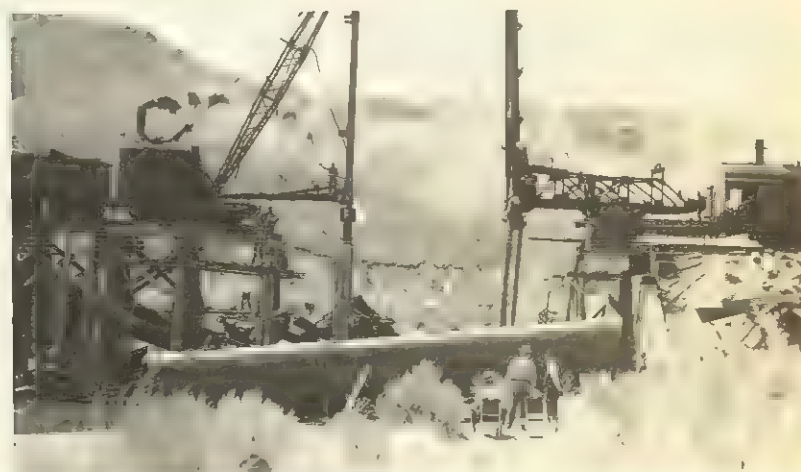
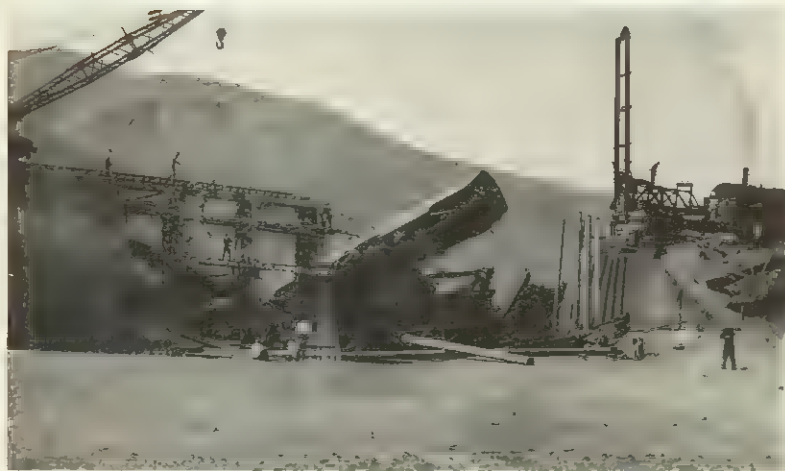
STREAMLINER WRECKAGE

**Death Hit
Swiftly**



"CHINATOWN," ONE OF THE CARS IN THE CRACK CITY OF SAN FRANCISCO FLYER, ON ITS SIDE IN MID-AIR AS IT RESTED ON WRECKAGE OF BRIDGE OVER RIVER.

Driving pile trestle to replace wrecked bridge



Completed Bridge. Picking up scrap



Completion of driving of pile trestle



Completion of driving of pile trestle to replace Bridge #5. Parties in picture

C.A. Johnson	B&BSupervisor
Dick Rintaul	Genl Bridge Inspector
T.W. Goslin	Water Service Supervisor
P.F. McNally	Divn Bridge Inspector
D.W. Jenkin	B&B Foreman

Salt Lake Divn crew in charge of McNally drove 5 bents while Sacramento Divn crew in charge of Bill Philips drove three. Bridge was replaced in three days although full service not resumed for several days account relief outfits using bridge to pick up wrecked cars.

Charlie Johnson, Tom Goslin
Otis Weeks, W.H. Kirkbride



Otis Weeks & W.H. Kirkbride in foreground



Bill Brady & Dick Rintaul cooling them off



During every major emergency President McDonald was out on line to give direct help in restoring service quickly. Frequent trips over the railroad, sometimes by motor car, gave him intimate knowledge of the property. In this picture taken by Secretary Donald Brown at Carlin in 1939 he is shown with, left to right: Chief Engineer W. H. Kirkbride, Vice President A. T. Mercier, Supt. J. C. Goodfellow, and Vice President J. H. Dyer.

San Francisco, Nov. 30, 1953.

Dear Tom:

It has taken me a little while to get some of the pictures and information which you requested in your letter of November 6.

As you know, the derailment occurred on August 12, 1939 at 5th crossing of the Humboldt River. The temporary pile trestle which was constructed was of open deck type, all untreated material and was 121'7" long. The pile driving started at the east end of the structure on August 14 at 6:30 P.M. and on the west end on August 16. The last pile was driven on August 16 at 7:45 P.M. Our records indicate that on August 15 some delay was incurred account wrecker picking up cars at the trestle.

While trestle was reported as completed August 17 at 4:55 A.M. and ready for temporary service, it was not until August 21 that regular traffic was taken over the trestle. The structure remained in service until October 29, 1940, when we completed the channel and the track relocation involved in the 5th and 6th crossings. You no doubt will remember the work that Pete Lakin did with the shovel. I recall also that Vince Erquiaga was there as mechanic to keep the trucks running which we used to make the fills.

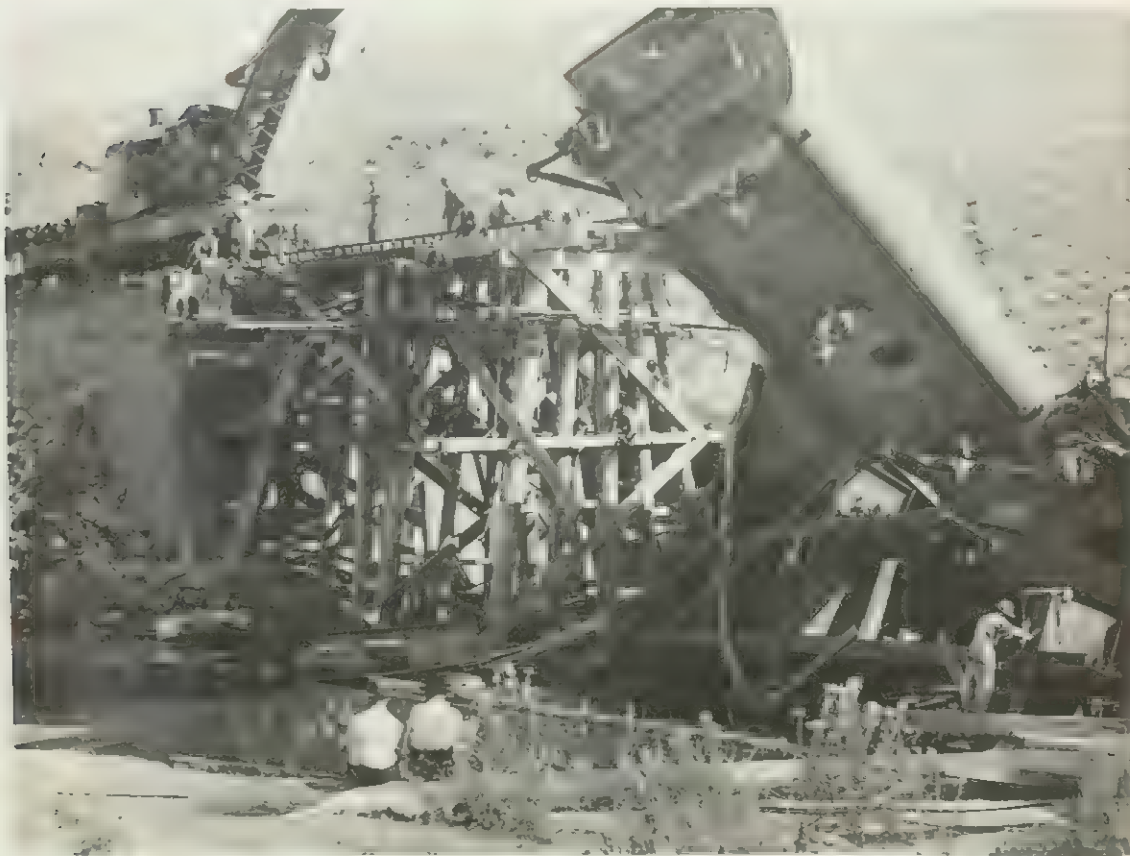
Our record does not indicate just who was in charge of each of the pile drivers, but we feel sure from talk around here that Bill Phillips and McNally handled the driving.

I have been able to find a few pictures which may not be in your files and to which you are welcome. On the first one it looks to me like a man named Tom Williamson, wearing a black hat, is resting on a pile.

Sincerely yours,

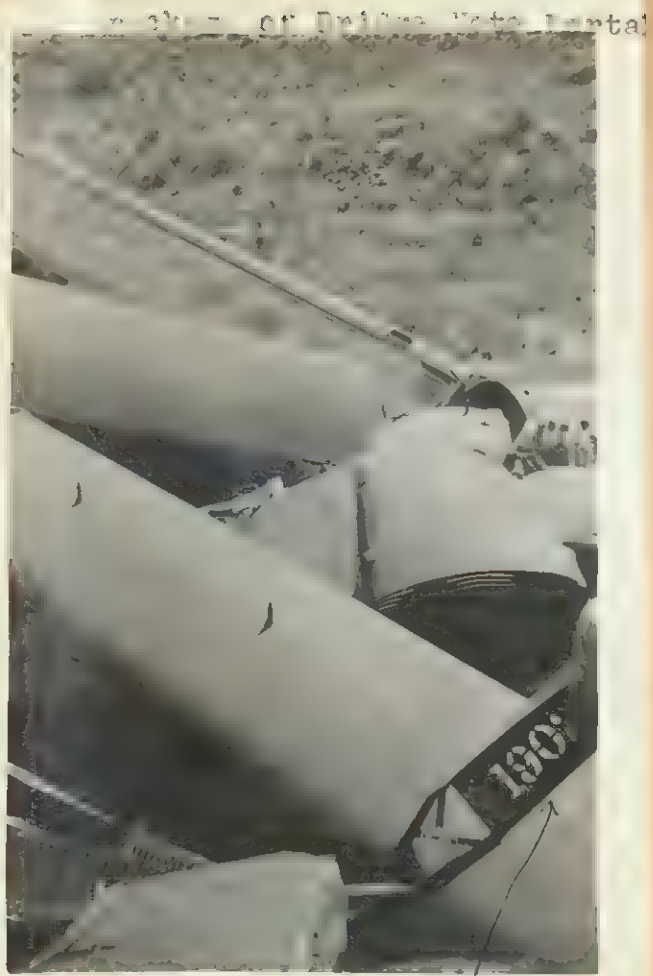
Wm. Jackson

Mr. T. L. Williamson,
4739 B Street,
Sacramento, California.

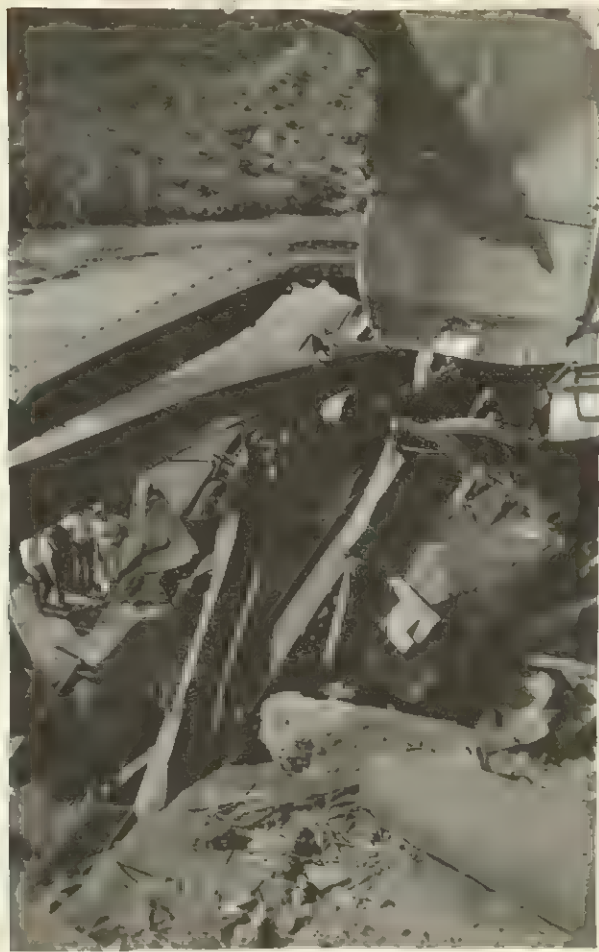


Driving first bent east end trestle



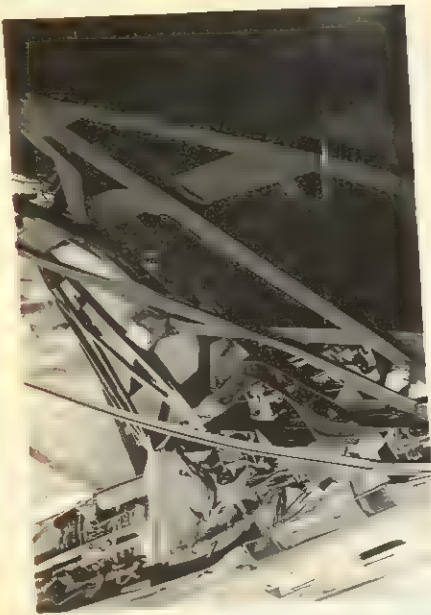


Note Portal of Bridge

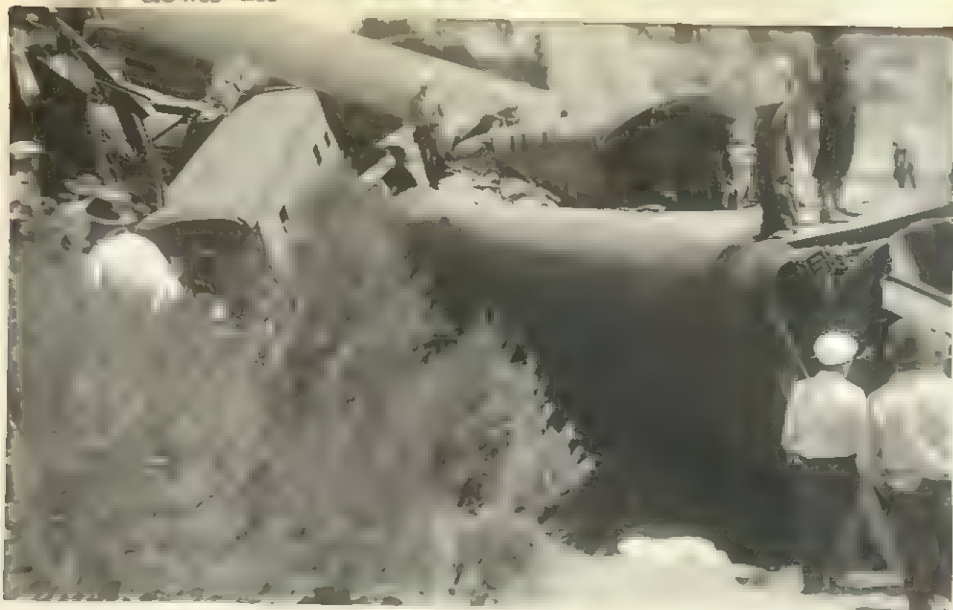


Wreckage of Bridge





Wrecked Bridge



Car down in bed of river



Dining Car



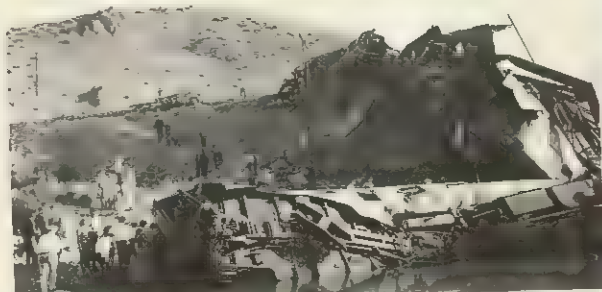
Dining Car



Chinatown

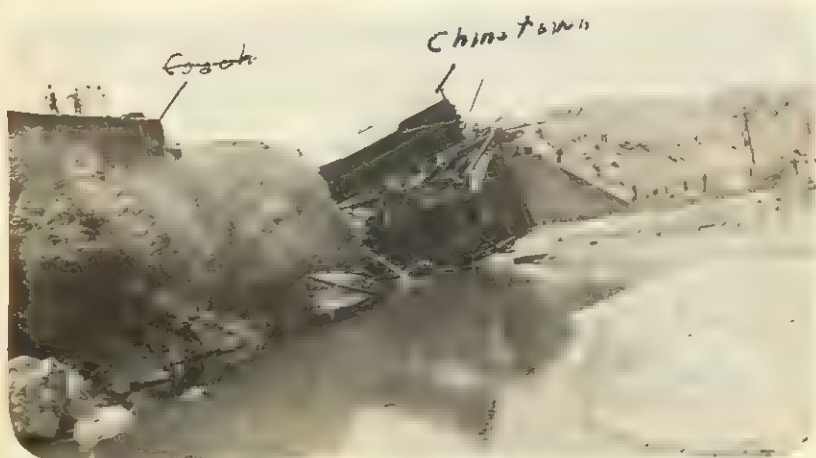


Wreck of bridge and car



Dining Car in River

Car Chinatown



North Side

Car "China Town"





SABOTAGE—Roadmaster T. L. Williamson points to evidence of sabotage. He holds pencil to point (shown by arrow) where rail was taken up, bent four inches inward, then respiked. Wreck resulted when train hit open rail.

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SAD SURVIVORS OF DISASTER



STRANDED—Left to right, Dena McDonald, Mary Block, Margaret Case, all of Chicago, Elsie Fox of Oakland and Dorothy Pfleuger of Chicago, survivors of

desert train wreck, sit by right of way awaiting rescue train. Myrtle Kobosky of Eland, Wis., companion of Miss Block and Miss McDonald on trip was killed.

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DEATH BREAKS UP HAPPY TRIO

Last week three Chicago girls started out happily aboard the sleek streamliner City of San Francisco on a trip to the Pacific coast and the Golden Gate Exposition.

Yesterday, two of the girls, Margaret Case and Dena McDonald sat quietly together beneath a blazing Nevada sun surrounded by the battered and twisted wreckage of the train. A few feet away, their companion on the adventure, Myrtle Kobosky lay covered by a makeshift shroud.

All the two girls could say was, "we don't think we'll go to the Exposition now."

CCC PAIR KILLED

YELLOWSTONE PARK (Wyo.), Aug. 13.—(AP)—A truck bearing Civilian Conservation Corps enrollees rolled down a bank last night and killed Rocco R. Martello, 17, Brooklyn, and Norman Montero, 19, New York City.

Additional wreck details will be found on Page 4.



Waiting for the rescue train, survivors sat all night on luggage beside tracks. Companion of two girls in left foreground

was killed. Unhurt passengers tore up their clean clothes to make bandages. Single doctor aboard train worked tireless-

ly, fitting tourniquets and rough splints on injured. Not till ten hours after wreck did the rescue train come for survivors.

S.P. Officials Trace Murderer's Moves

Probers Discover How He Worked in Darkness

ELKO (Nev.), Aug. 13.—A four-inch gap between two rails was the reason the City of San Francisco streamliner was torn apart and became a twisted mass of metal with a heavy toll of deaths, officials at the scene declared today.

The opening could have been caused only by a person intent on wrecking the train, they held. And the evidence, they pointed out, supported their contention of homicidal sabotage of the famed rail flyer.

The steel plate that bound two lengths of rail on the curve together had been removed. It was found during the day in a pile of brush at the foot of the right of way embankment.

SPIKES HEADS BATTERED.

Spikes which held the rail on the ties had been removed, the end of the rail pushed inward, and then

had been struck but only a few hours before.

A brush of tumbleweed had been placed over the gaping space, to hide it from the vigilance of Engineer E. F. Hecox as he tooted the streamliner at sixty miles an hour into the curve.

TERRIFIC FORCE.

When the leading wheels of the 5,400 horsepower motor car struck the opening in the rigid continuity of the "spliced" rails, the guiding flanges on the inside of the wheels went straight ahead, off the end of the rail before the opening.

Pounding with terrific force on the ties and roadbed the engine



ENGINEER E. F. HECOX OF STREAMLINER

Hit Gaping Space at 60 Miles an Hour

—Copyright by San Francisco Examiner. All Rights Reserved.

respiked to the ties, leaving the and several of the following cars gaping four inches. The heads literally ripped the rails from of the track spikes were battered, their places. Following cars indicating that they had not been added to the damage, beginning redriven into the ties with a regular spike maul, a narrow two-headed sledge that requires but a few swings by an expert to drive home a spike.

The end of the rail showed marks where leverage had been used to force it inward. It also was battered. The indentations were shiny, indicating the blows or persons unknown."

HUNDREDS VISIT WRECK

Come by Auto, Handcar and Plane

ELKO (Nev.), Aug. 13.—Hundreds of persons were drawn to the scene of the wreck of the City of San Francisco as word of the disaster spread through the desert country. They came by foot, dilapidated motorcar, shiny new automobiles, handcars and even airplanes.

But two roads lead to the scene of the accident in the Humboldt River Canyon. They circle through desert land that is almost a foot thick in dust. They wind into flood carved gullies. They are studded with sharp stones beneath the deceptive covering of filmy dirt.

Motor vehicles were forced to travel almost a half mile apart along the road because of the blinding wreaths of dust raised by their passage. Several crashes were narrowly averted as drivers proceeding in the opposite direction plunged forward at the "racing" speed of fifteen miles an hour through the visibility-destroying curtain that hung listlessly in the air.

Dancers Walk 17 Miles to Aid

ELKO (Nev.), Aug. 13.—H. D. Symth, senior pre-medical student at St. Mary's College at Moraga, was attending a dance at Beowawe when a section hand dashed in with word of the City of San Francisco disaster.

With other dancers he drove and walked the seventeen miles to the scene and for the remainder of the night gave first aid to the injured. Then at dawn he served on a coroner's jury, hastily gathered by Acting Coroner Roy S. Harris from among the rescuers, and which blamed sabotage for the deaths.

Those who viewed the disaster scene were forced to abandon their automobiles almost two miles from the canyon. That distance they walked along the graveled roadbed of the railroad. And when the spectators had had their fill of the horror of the scene—the twisted metal of the derailed coaches, the shrouded bodies lying in the hot sun awaiting identification—the same walk faced them. Then they proceeded more slowly.

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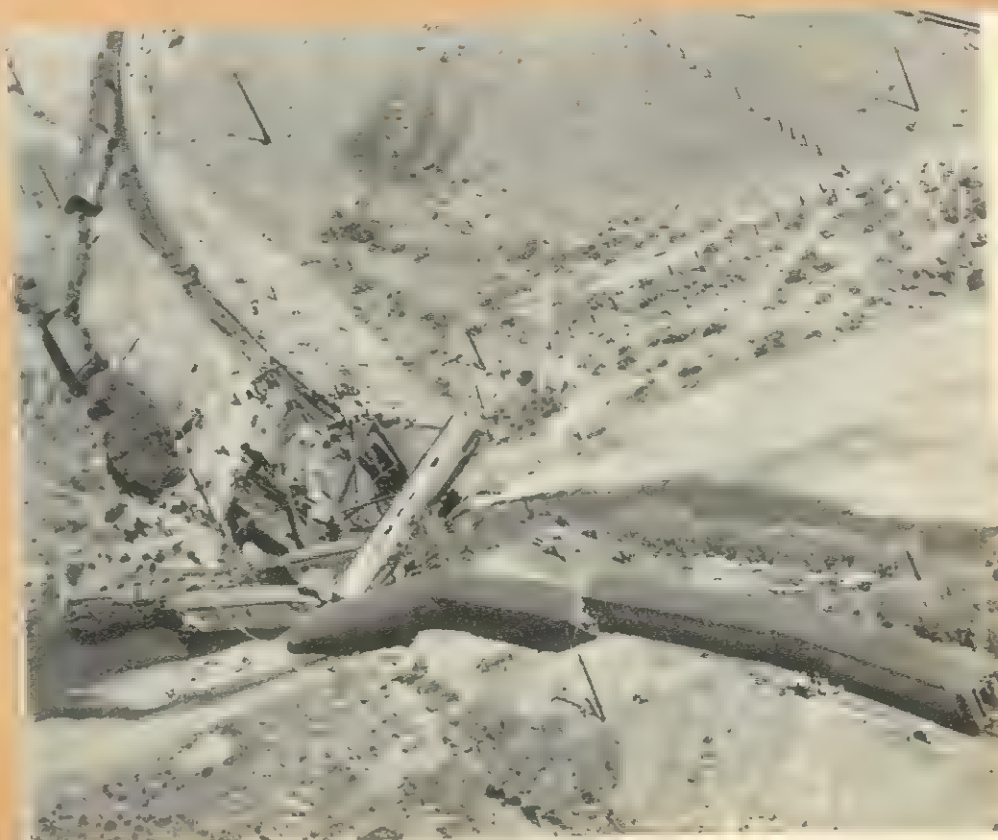
In Humboldt River canyon, 250 mi. east of Reno, Nev., the wrecked streamliner *City of San Francisco* sprawls across

broken bridge in river bed. Rearing toward the clouds is the Pullman *Chinatown* in which many of the dead and injured

were asleep at time of crash. Most of the victims were in the center cars, which tangled with the girders of the bridge.



Electric-powered locomotive and front cars miraculously clung to the rails, careened the bridge and halted right side up in cut on the western bank of river bed.



Seventeen cars lie strewn across landscape. At upper left are locomotive and front cars which crossed bridge. Seven piled up in canyon, taking greatest toll of lives. The rear cars escaped serious damage.

FREE PRESS

DARES TO TELL ALL THE TRUTH

Oakland, California, Tuesday, August 15, 1939

COVER

RECORD BROADCAST

RAILROADING

Railroading is partly running trains, partly running bluffs and partly preparing lawsuits. Some railroads spend all their energy in running trains. Some spend a large part of their energy and employ a large part of their personnel in political manipulations, bluffing the public and manufacturing evidence for lawsuits. The Santa Fe belongs to the first class and the S. P. (Special Privilege) to the second class.

When it comes to having a subservient governor appoint a favorable Bridge Authority to immediately donate \$30,000,000 to the S. P., the political system seems most profitable. But when they lose an election they are S. O. L. The S. P. has been spending money for elections and legislative action; the Santa Fe for roadbed and equipment. Whatever happens, the Santa Fe has its roadbed, over which they can run trains at any desired speed. Without the political handicaps, the S. P. cannot compete with the Santa Fe. Any attempt to do so will result in disaster with the present roadbed.

This is shown by the terrible Nevada wreck. For 100 miles the Western Pacific and Southern Pacific have parallel single track "competing" lines. Recently one double track has been made of these two single track roads. The W. P. carries the east bound traffic and the S. P. the west bound. While not in the same class with the New York Central or Santa Fe roadbed, the W. P.'s is far superior to the S. P. The wreck was a west bound train on the S. P. tracks. The train was the fast Union Pacific train completing its journey on the S. P. track. It is always difficult to tell the exact cause of a wreck after things have been busted up and evidence gone. Half the time in an auto wreck, the steering gear is smashed and the "experts" give the cause as "defective steering gear." In the railroad's questionnaire, the surviving employee knows better than to put down as the cause of a wreck, "defective track."

In this wreck, the real cause seems to be that the roadbed was not able to match the speed of the equipment--a 100 mile train on a 40 mile track. The officials probably think so too, for it was 6 hours after the wreck before the news was let out to the general public.

By the enforced brotherhood rules, the crews select their runs in order of their seniority. The enginemen are paid a scale according to the weight of the engine, but the enginemen dodge the new S. P.

the roadbed was not able to match the speed of the equipment--a 100 mile train on a 40 mile track. The officials probably thinks so too, for it was 6 hours after the wreck before the news was let out to the general public

By the enforced brotherhood rules, the crews select their runs in order of their seniority. The enginemen are paid a scale according to the weight it would not be the same way. But the count of "Rail Deliberately Twisted Loose by Plotter" is plainly disproved by their own aerial view.

The railroad brotherhood's pet bill for the 1937 session of the California Legislature was the Track Inspection Bill. The bill provided for regular inspection of roadbeds of the railroads, with the avoidance of this kind of wreck as the object of the bill. It was killed by the S P lobby inducing double ender "laborites" to take a run out. Such a law in California and Nevada would probably have prevented this wreck. It would have compelled the S. P. to re-ballast most of the California roadbed.

the people of San Francisco voted the measure out originally. Knowing that the tractor's bid on and would have to follow had not been dropped from the original survey that other contractors as built by the contractor who was permitted to check made as to what the cost should be for the enormous waste of public money we may have a complete of the Highway Department to look into this notorious taken from the records. If it is beneath the dignity of items mentioned are not mere guesses, they were bauchery indulged in by Highway officials. The

FI
DARI

SS
RUTH

DDUCRAM

Carlin, August 24, 1939.

Mr. Williamson:

Attached is copy of the "Free Press" which I promised I would obtain for you.

I had an unblemished record before I became associated with you people on the Salt Lake Division.

Dan O'Connell.

Nevada Police Hunt Man With Both Ears Cut Off as Suspect

*Rail Twisted Loose, Reset 4
Inches Inward; Officials
Believe Spite Motive*
PROBES UNDER WAY

By WILLIAM FLYNN

Examiner Staff Writer

ELKO (Nev.), Aug. 13.—Murderous sabotage was blamed today for the wreck west of here last night of the streamlined train City of San Francisco as the death toll mounted to twenty with ninety-two injured.

The powerful and beautiful seventeen-car giant of the rails, roaring through the midnight night toward San Francisco, plunged to disaster in Humboldt River because a rail had been torn loose with fiendish deliberation and reset four inches inward.

Three Separate Inquiries Dig Up Facts on Sabotage

That much was established beyond doubt as three separate investigations were set in motion with headquarters in this little city, where the injured overflowed hospitals and filled private homes.

Tonight the Nevada State Police broadcast a pickup order for an unidentified man "with both ears cut off," disclosing only that he was wanted for questioning in the wreck.

Investigators stated that the manner in which the saboteur operated proved he knows something about railroading. From this they deduced he may be a disgruntled former employe who nursed his anger until it grew into a mad fury. Southern Pacific officials were already checking former employes' records. There was also the possibility, investigators added, the wrecker might be a hobo or a gang of hobos.

37 Passengers on Luxury Train Escape Unscathed

Of the twenty dead, eleven or twelve were train employes. At least ten of the dead were Bay region residents. One of the dead

Streamliner Most Modern on Rails

*Housed Power Plant
210 Feet Long, Set
Speed Record*

The streamlined City of San Francisco was a train of superlatives.

It consisted of seventeen cars, including three power cars, a coffee shop, the dining car in which most of the lives were lost, and an observation-lounge car with cocktail bar and barber shop.

Completely streamlined, with no open gaps between the individual cars, the train achieved speeds in excess of 110 miles an hour. Its power plant was 210 feet long—the largest and most powerful of its type in the world.

The train was driven by traction motors geared to the axles of the three power cars. Electricity was generated by three twin 900 horsepower twelve cylinder Diesel engines.

It was completely air conditioned, had electrical outlets for razors and curling irons in all rooms, individual radios and a telephone service from all cars to diner and bar.

Engineer Hopes to Face Wrecker

*Hands Clench, Eyes
Become Cold as He
Vows Vengeance*

ELKO (Nev.), Aug. 13. — A gray-haired man with cold gray eyes today paced back and forth beside the derailed Diesel locomotive that was speeding the streamlined "City of San Francisco" westward last night when the train suddenly split asunder.

He was Engineer E. F. Hecox of Sparks. He did not want to talk about the wreck or what had happened. He wanted to talk about the "blankely blank so and so" who had caused it.

"I hope I meet that guy some time," Engineer Hecox said.
EYES TURN COLD.

As he spoke his hands clenched, his eyes became colder. The surge of rage loosed a stream of words.

"I was doing sixty around the curves," he said. "I saw what looked like a tumbleweed on the outside rail. I looked closely and that was what it was. I rolled ahead."

"As the weed disappeared under the bumper, all hell broke loose. There was a grinding sound. I knew I was off the track. I did everything I could but it wasn't enough."

The engineer, a veteran of almost a million miles at the throttle of powerful locomotives, then explained that the inside frame of the motor trucks on his engine prevented it from jumping the track. But the pounding of the car and of the following one on the ties threw the other coaches into a wild gyration.

OTHERS ALSO BITTER.

Hecox' anger at the maniac who moved a rail was matched by that of Roadmaster T. L. Williamson of Winnemucca and Assistant Superintendent T. J. Foley of Ogden.

Both men were grim as they pointed out the cause of the derailment, made sure that nothing was touched until complete photographs had been made by The Examiner at request of company officials.



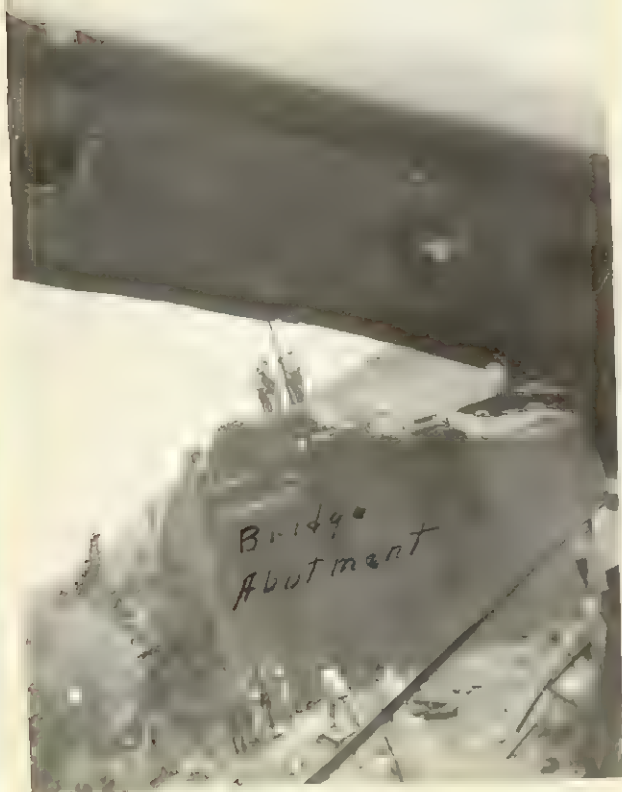
Pictures taken underneath car at point of derailment showing tie plate spiked in new location and also showing broken bond wires. Note tank on bottom of derailed car which would have prevented driving spikes after derailment. This one of main reasons for determining sabotage as cause of derailment



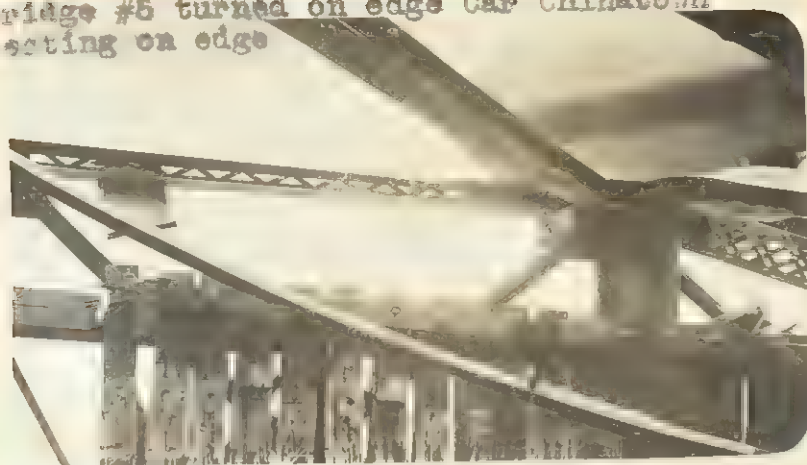
Car Chinatown resting on wreckage of Bridge



'China Town' Car



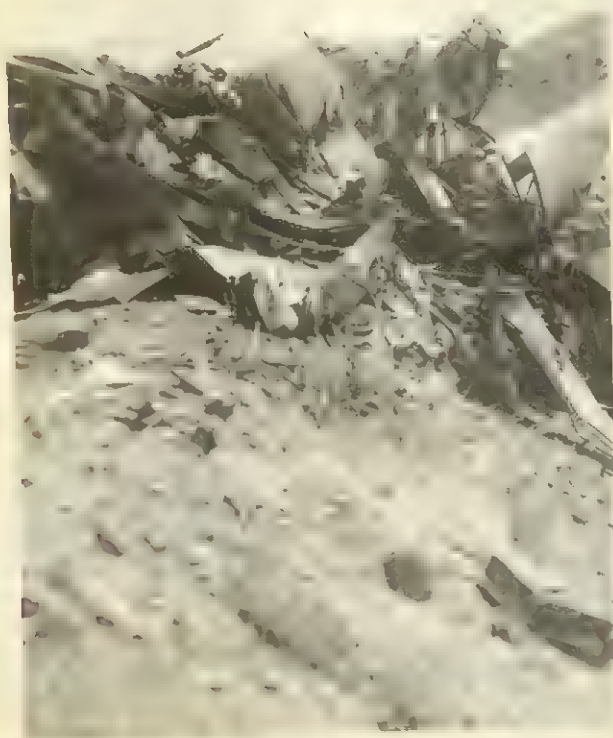
Bridge #5 turned on edge Car Chinatown
resting on edge



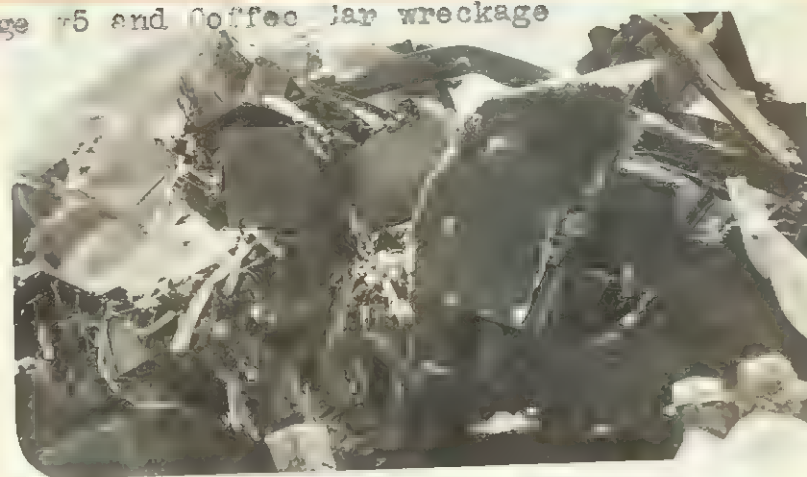
Bridge #5 and car Chinatown



Wreckage of Coffee car
and Bridge #5



Bridge #5 and Coffee car wreckage



Car Chinatown in back-ground Wreckage of
Coffee car and Diner in foreground



Wreckage of diner



Diner

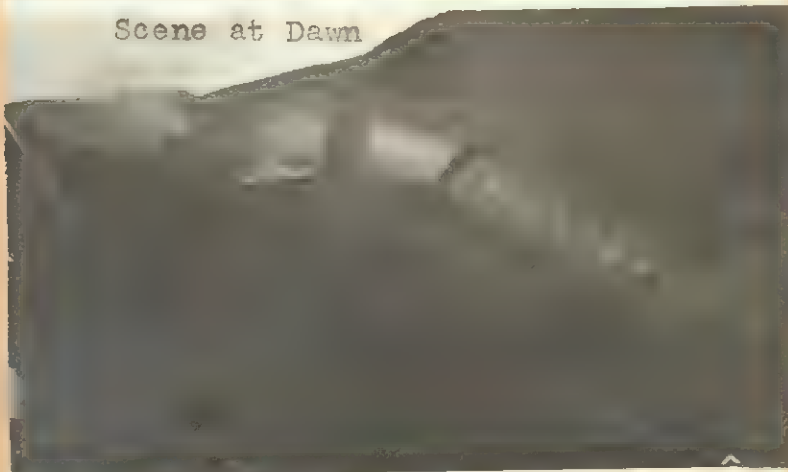


Dining car in river
wreckage of bridge in rear



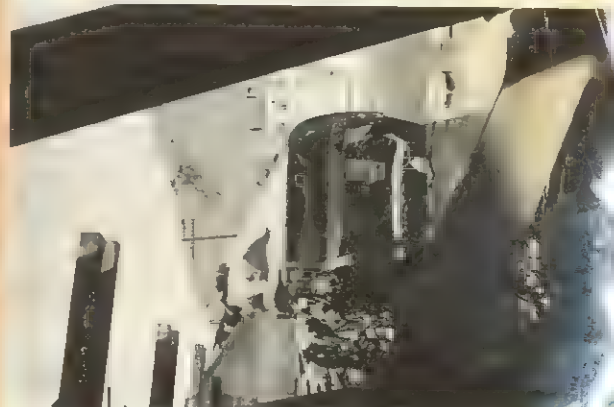
Dining car in River

Scene at Dawn



Scene at Dawn

Dining car



Rear track this car still
on track and two more
behind not derailed



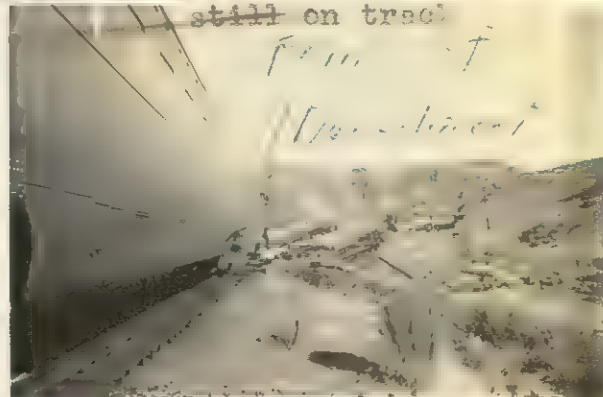
From Rear End

taken from wrecked bridge looking
west showing coach baggage car
and 3 other cars

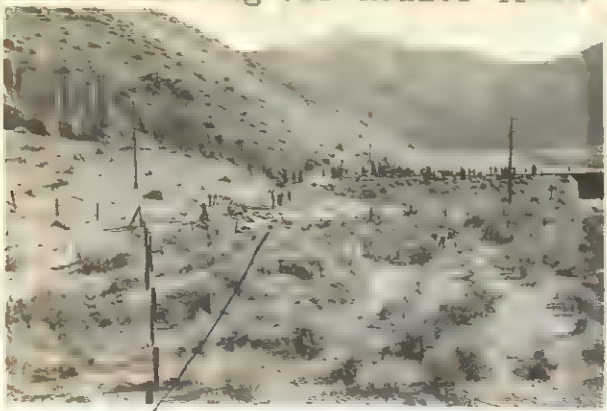


Head End of Train looking West

Taken from rear end. This car
still on track



Bodies waiting for Relief Train



Bodies waiting for Relief Train

Bodies waiting for Relief Train

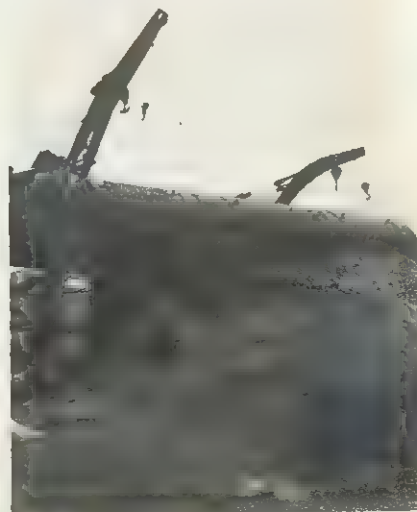


Bodies waiting for Relief Train

Picking up cars which have been cut in two for loading



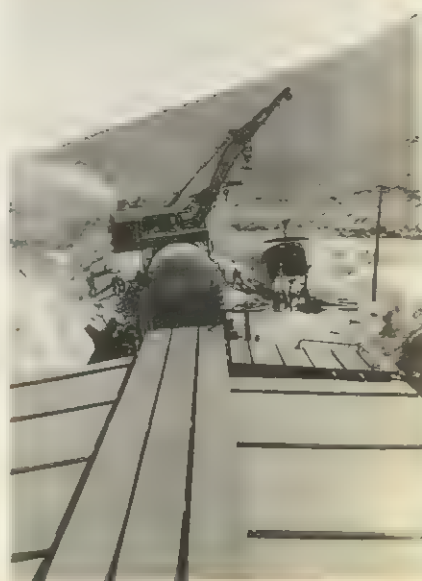
Picking Diner out of river



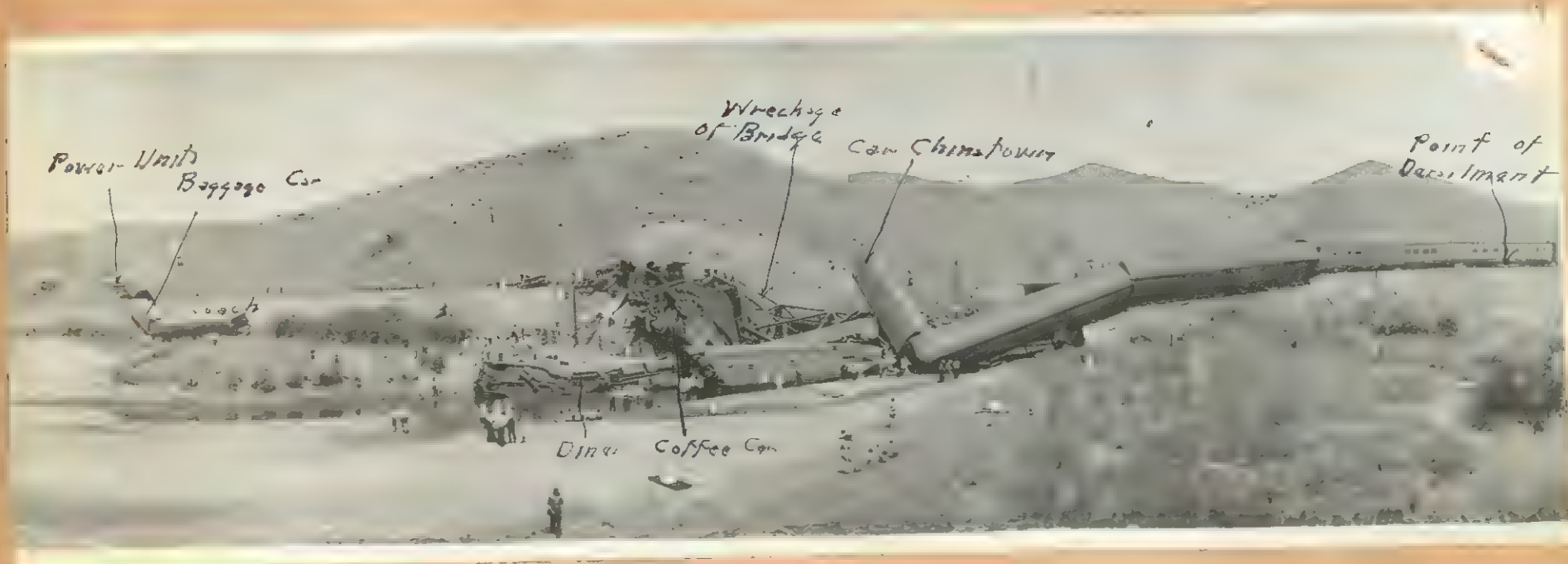
Cutting Cars apart for loading



Cutting cars apart for loading







T. L. Williamson
under discussion and at
Hartney, Wrecker, at
St. Paul, Minn. Aug. 1939
pointing to moved
The place





Article Concerning

F.B.I.

33

written 1942

tage

emery dust or steel filings, are sometimes thrown into important bearings, and there accomplish destruction. These tiny bits of material are examined microscopically, and sometimes chemically and spectrographically, in the laboratory, and their nature determined. Subsequently, when investigating agents produce sample materials from suspected sources, these are likewise analyzed and compared as to kind, quality and size with the material used to do the damage.

Experts in soil analysis examine mud removed from the tires or fenders of automobiles suspected of having been driven to a point where sabotage was committed, and compare this with the soil at the scene of the crime. Other experts study tool marks left in metals during sabotage attempts. Sometimes the screw driver or hammer used to gouge into finely made bushings or other precision parts can be identified definitely as the tool which made the particular mark.

Streamliner Wreck Studied

A year and a half ago an important sabotage case was studied in the bureau's laboratory, in which practically all of our scientific procedures were utilized in reaching certain final conclusions. In this case, a transcontinental streamlined train was wrecked. A rail had become moved at the approach to a bridge over a stream and canyon. This happened in such a manner that the train would be thrown against the bridge and into the canyon. Part of the train escaped across the bridge, but several of the cars fell down the embankment.

The statement of the engineer in this case suggested sabotage, but the rails had been torn up by the wreck and there seemed to be little evidence to offset a staunch suggestion that carelessness on the part of the company caused the wreck. Laboratory experts of the F.B.I. examined the scene, and subsequently studied much of the evidence in Washington. The rail displaced, for more than half its length, had been painted on its running surface with a dark brown paint.

OVER

Negro Track Man Derailed Panama Limited

An Illinois Central track man has confessed to the Federal Bureau of Investigation that he tampered with the track near Kerrville, Tenn., on July 13, causing the derailment of the Panama Limited, a streamlined Illinois Central train. The criminal, James Edward Payne, a 32-year-old Illinois Central negro track laborer, admitted that he pulled the inside spikes on 14 ties, removed one pair of angle bars and moved one end of the rail inward in much the same manner that vandals caused the wreck of the City of San Francisco three years ago. Originally, when taken into custody by the FBI several weeks ago, Payne admitted tampering with the track in an attempt to wreck the streamliner, but told a wild story of being forced to commit the crime by a white man with a gun. He subsequently admitted, however, that no other person was involved and that he intended to rob the train. He told the FBI that no grievance against the Illinois Central was involved. He had been working for the railway about three weeks prior to the derailment and had previously worked in an Illinois Central track gang in 1927 and 1928. He had no previous criminal record and has always worked as a farmer or laborer near Kerrville.

In committing the crime, Payne had secured a pinch bar which had been left near a spur track switch and had been used as a make-shift switch lever. He hid the pinch bar on the right of way near the track at night several days before he attempted to wreck the streamliner. The same night, he broke into a cotton gin and stole a big wrench and hid it near the track. These were the only tools used.

SAN FRAN

Trackwalker Rewarded for Preventing Crash

A gold watch and chain, gift of the Southern Pacific, will always remind Antonio Nencini, trackwalker, that his vigilance frustrated an attempt to derail a train near Dutch Flat last month.

The timepiece was presented to Nencini at Sacramento, accompanied by a letter signed by President A. D. McDonald praising the worker's good judgment and quick action.

Nencini found bolts and spikes pulled from a westbound line over the Sierra near Towle. He attached warning torpedoes to the approaching rails, ran to the Towle station and telephoned an alarm. Three men, arrested by the FBI, are awaiting trial in Sacramento as saboteurs responsible for the track tampering.

SAN FRAN

A gold watch and chain, gift of the Southern Pacific, will always remind Antonio Nencini, trackwalker, that his vengeance frustrated an attempt to derail a train near Dutch Flat last month. The timepiece was presented to Nencini at Sacramento, accompanied by a letter signed by President A. D. McDonald making the recovery of judgment and quick action.

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... ..

Was this done by the saboteur, supposedly, to kill the reflected gleam from the headlight of the train upon which the engineer ~~would~~ depend to assure him that ~~the~~ track ahead was clear? ~~By~~ rumor suggested that ~~the~~ rail had been painted after the wreck.

The Diesel engines of the train had negotiated the bridge successfully, although they were off the track. Scrapings were noted on the painted rail. The experts proceeded several hundred yards from the point of derailment to where the Diesel engines rested. Climbing beneath them, they scrutinized every bit of the undercarriage, and there found small scrapings of the dark brown material. This was analyzed spectrographically and was found to be paint—paint of the same color and composition as the paint used to disguise the rail several hundred yards back. This established positively that the rail had been painted at the time the Diesel engines left the track. Other laboratory analyses identified the manufacturer and particular brand of paint, and, subsequently, a small paint can was found discarded near the wreck.

In dragging the creek above the point where the wreck occurred, a bundle of track tools was found tied up in two zipper leather jackets. Included among these were claw bars and track wrenches. Toolmark experts of the F.B.I., using precision comparison microscopes, were able to prove that these were the tools used to remove the spikes and bolts in shifting the rail. The criminals responsible for this sabotage have not yet been located. At the time the wreck occurred there was no Federal law which would cover such an offense, and the Bureau's efforts in this case were limited necessarily to making its laboratory facilities available to the railroad police and the local law enforcement authorities.

Laws Against Sabotage

On June 8, 1940 the President approved a law which makes it a Federal crime to wreck or attempt to wreck a train engaged in interstate commerce. This law covers any willful and unlawful attempt at such wrecking, and refers specifically to the firing or exploding of tunnels, bridges, viaducts and trestles. This is the principal peace-time statute which gives the F.B.I. investigative jurisdiction over attacks on your bridges. Another peace-time statute which, in some instances, might have effect, is that which covers violent interference with foreign commerce, and makes it unlawful to obstruct in any way the exportation to foreign



Photo shows the tie plate (on second tie from lower edge of picture) which was used by unknown person, or persons, to spike down the rail that had been maliciously shifted out of place to form the derailler that wrecked the streamliner *City of San Francisco* near Harney, Nev., the night of Aug. 12. The dotted white line was placed on the photograph after print had been made from original negative to show normal outside edge of the plates on the adjacent ties. Roadmaster T. L. Williamson is holding a piece of wood to indicate the location of outside edge of the tie plate that held the rail in normal position before it was shifted four and five-eighths inches out of line toward center of the track. Williamson is facing westward in direction the train was moving. The misplaced rail was thrown to the opposite rail when the derailment occurred and does not show in the picture. Shortly after the derailment, a *San Francisco Examiner* photographer took this flashlight picture underneath the fourth car from rear of the train, which car was partially derailed and came to rest over the misplaced rail.



Sabotage was effected by moving rail out of line. Tie plate and signal cable at left show angle of displacement.



Engineer Edward Hecox had operated the streamliner since it started the Chicago-San Francisco run in 1938.

BOARD OF INQUIRY'S FINDINGS

Malicious Tampering with Rails, with Intent to Derail Streamliner, Found Cause of Wreck

CONVENING in Carlin, Nevada, on the morning of August 19, a Board of Inquiry, consisting of Chairman J. C. Goodfellow, superintendent of Southern Pacific's Salt Lake division; Otis Weeks, division engineer, S. P. Company; J. E. Stone, master mechanic, S. P. Company; David Dotta, mayor of Elko, Nevada, and Ira Pearce, merchant, also of Elko, conducted an exhaustive investigation of the cause of the derailment of the "City of San Francisco" and at the end of a 3-day hearing returned the following findings:

"Board of Inquiry finds that the derailment of streamliner 'City of San Francisco' was solely and directly caused by person, or persons, unknown to this board, unlawfully and maliciously and with intent of wrecking said train, separating the south line of rail at a rail joint by placing south rail with the receiving end toward center of track, four and five-eighths inches from its normal position. This formed a derailler which threw the first 14 cars of this 17-car train off the rail as they passed over the rail

opening, which was constructed at night between train passages and in such a way that automatic block signals remained clear to the engineer of the approaching train. The severity of the result was greatly increased by the rail opening being placed on the outside of a three-degree curve, 169 feet east of bridge Number Five, 120 feet in length, over the Humboldt river, and 33 feet above the river bed. The bridge was demolished by derailed cars, some of which fell to the river bed.

"No negligence or fault appears on the part of officers or employees of the Southern Pacific Company."

Five representatives of the Interstate Commerce Commission attended the inquiry and interrogated witnesses at great length, and agents of the Federal Bureau of Investigation sat in at all sessions. Col. C. B. Sexton, chairman, Nevada State Public Service Commission, and George Gottschalk, inspector, Nevada State Police, were also present throughout the hearing.

T. L. Williamson

Winchester - Nevada

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
SOUTHERN PACIFIC RAILROAD
HARNEY, NEV.

AUGUST 12, 1939

INVESTIGATION NO. 2375



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1939

For sale by the Superintendent of Documents, Washington, D. C. Price 10 cents

SUMMARY

Inv 2375

Railroad	Southern Pacific.
Date	August 12, 1939.
Location	Harney, Nev.
Kind of accident	Derailment.
Train involved	Passenger.
Train number	101.
Engine numbers	Diesel power units S. F. 1, 2, and 3
Consist	14 car units.
Speed	60 m. p. h.
Operation	Timetable, train orders, and automatic block system.
Track	Single; 3° curve; 0.30 percent descending westward.
Weather	Clear.
Time	9:33 p. m.
Casualties	24 killed; and 115 injured.
Cause	Malicious tampering with track

2

T. L. Williamson

Winemucca -
Nevada.

NOVEMBER 13, 1939.

TO THE COMMISSION

On August 12, 1939, there was a derailment of a passenger train on the Southern Pacific Railroad near Harney, Nev., which resulted in the death of 24 passengers and 15 dining-car employees, and the injury of 99 passengers, 1 train-service employee, 1 stewardess, 11 dining-car employees, and 5 train porters. This investigation was made in conjunction with the Nevada State Public Service Commission.

LOCATION AND METHOD OF OPERATION

In the vicinity of the point of accident this is a paired-track line jointly operated by the Western Pacific Railroad and the Southern Pacific Railroad. East-bound trains of both lines use the Western Pacific track and west-bound trains of both lines use the Southern Pacific track. The accident occurred on the line of the Southern Pacific on that part of the Salt Lake Division designated as the Winemucca Sub-division which extends between Imlay and Carlin, Nev., a distance of 150.4 miles. Trains are operated by timetable, train orders, and an automatic block system. The accident occurred at a point approximately 1.55 miles east of the station at Harney and 169.5 feet east of bridge 518.54. Approaching from the east there is a tangent 437 feet in length followed by a 3° curve to the right extending 875 feet to the point of derailment and 1,215 feet beyond. The grade varies between 0.163 and 0.47 percent, descending westward, a distance of 2,327 feet to the point of accident and some distance beyond, being 0.30 percent at the point of accident.

The track structure consists of 130-pound rail, P. S. section, height 6 $\frac{3}{4}$ inches, base width 5 $\frac{1}{2}$ inches, 39 feet in length, laid new in 1931 on 24 treated fir ties to the rail length; it is fully tie-plated with Lundie canted tie-plates, which are corrugated on the bottom surface for secure grip on the ties; the intermediate plates are 8 $\frac{3}{4}$ inches by 10 $\frac{1}{2}$ inches and have spike holes spaced 3 $\frac{1}{2}$ inches between centers; the joint plates are 8 $\frac{3}{4}$ inches by 11 inches and have offset spike holes spaced 3 $\frac{1}{2}$ inches between centers. On the curve involved there are 4 spikes per tie-plate, 2 being inside and 2 outside of the rail. Angle bars are 24 inches in length and have 4 holes each. The angle-bar bolts are secured by nuts and lock washers. The rail joints are bonded for signal circuits with two No. 8 galvanized wires, 52 inches in length, looped at each end, housed behind the angle bars, and secured to each rail by channel pins which are

spaced 28 inches apart. The superelevation at the point of accident is $4\frac{1}{8}$ inches. The track is laid on 12 inches of crushed rock ballast, and is well maintained.

Approaching bridge 518.54 from the east the track is laid on a fill about 500 feet long and 30 feet at its maximum height. At the west end of the bridge there is a fill about 440 feet long, the maximum height of which is 27 feet.

Bridge 518.54 was a through-riveted Warren truss span, 120 feet in length, laid on concrete abutments founded on boulder base 41 feet below the base of the rail. The bridge, which was fabricated in 1902, had recently been strengthened by lateral reinforcements, and was capable of sustaining a rolling load equal to the specifications of Coopers E-50. Its horizontal clearance between trusses was 16 feet; its vertical clearance was 21 feet 5 inches above the top of the rails. The top surface of the rails was 33 feet above the river bed. The bridge was equipped with guard rails, which were 90-pound, second-hand rails, laid parallel to and 8 inches inside the running rails. The guard rails extended about 78 feet east of the east end of the bridge.

Signals Nos. 5213 and 5195, governing westward movements, are located 14,069 and 4,963 feet, respectively, east of the point of accident.

In the vicinity of the point of accident the maximum authorized speed for streamline trains is 60 miles per hour.

The weather was clear and it was dark at the time of the accident, which occurred at 9:33 p. m.

DESCRIPTION

No. 101, a west-bound streamline passenger train, known as "The City of San Francisco," consisted of 3 power units, an auxiliary power and dormitory unit, 2 chair units, 2 kitchen-diner units, 1 dormitory-club unit, 7 Pullman sleeping units, and 1 lounge unit, in the order named, and was in charge of Conductor Edwards and Engineman Hecox. The three power units were of steel-frame construction; the bodies were of $\frac{3}{8}$ inch plywood covered with 27-gage galvanized iron. The remainder of the units were of aluminum alloy with steel end-sills, body bolsters, and cross bearers. This train departed from Carlin, 16.0 miles east of the point of accident, at 9:15 p. m., according to the train sheet, 29 minutes late, and 18 minutes later became derailed 169.5 feet east of bridge 518.54 while moving at a speed of 60 miles per hour. The three power units and the following two units, remaining coupled, became derailed, passed over the bridge on the ties, and stopped with the front end about 907 feet west of the point of derailment. Powerunit No. 1, slightly

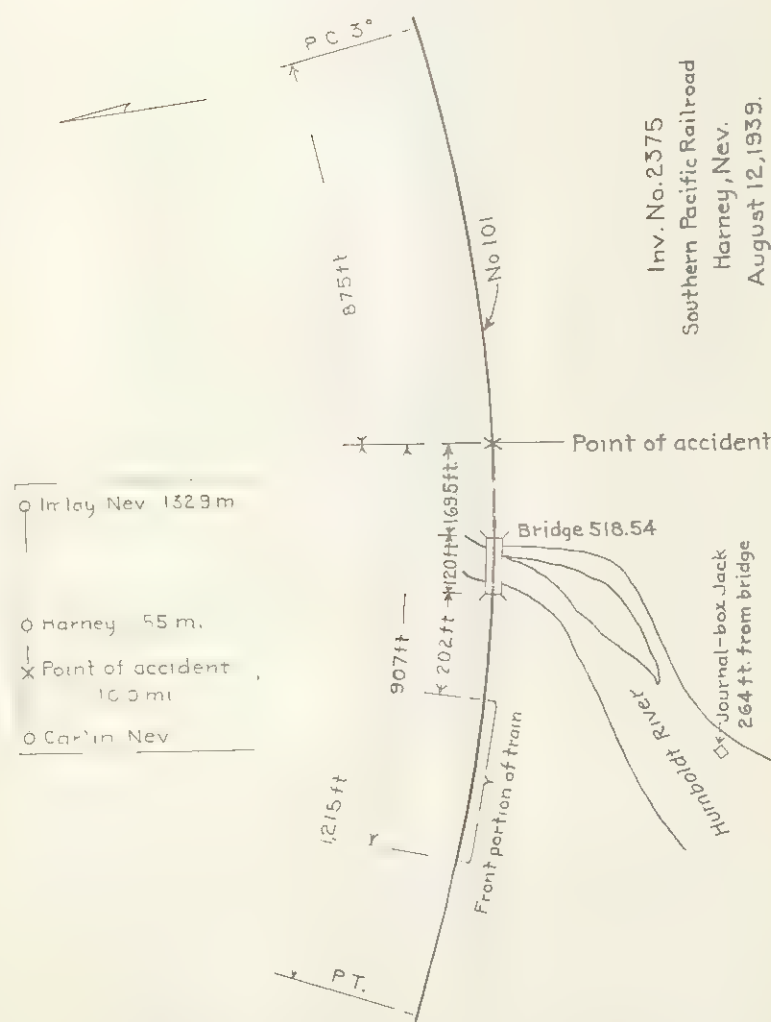


Fig. 1. Time delay in vicinity of point of accident

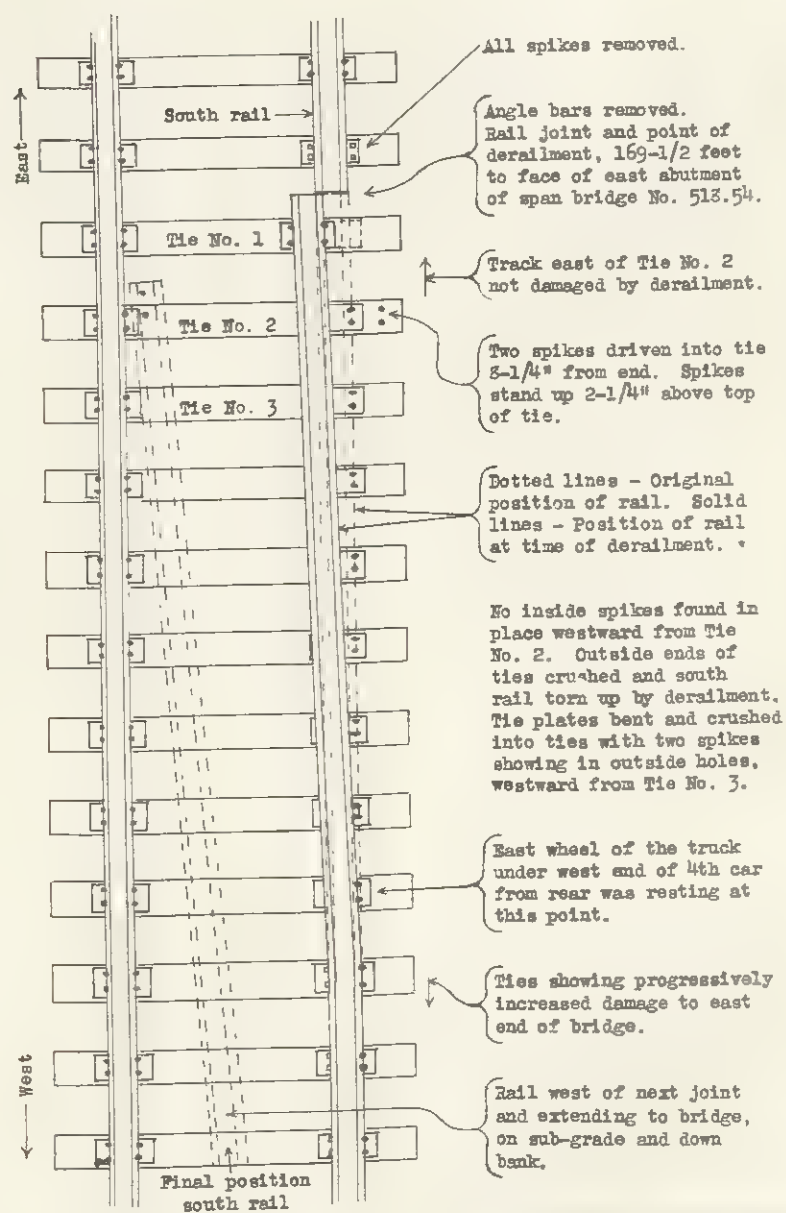


FIGURE 2 - Sketch showing normal, misaligned and final positions of rail and ties.

damaged, stopped upright on the ties and approximately 11 inches to the left of the line of track. Power unit No. 2, slightly damaged and inclined at an angle of 15° to the left, stopped with its front truck on the ties, about 12 inches to the left of the line of track, and its rear truck on the ballast. Power unit No. 3, inclined to the left at an angle of 45°, stopped with its front end on the fill and its rear end down the embankment; the left eave of this unit bore indications of having struck the bridge truss; the front truck was damaged considerably. Unit No. 4 stopped on its left side down the embankment to the south of the track; its side sheets were raked and broken through by the ballast; it bore marks indicating that it had struck the south bridge-truss. Unit No. 5 stopped on its left side down the embankment to the south of the track, with the rear end 200 feet west of the west bridge-abutment; its side sheets were sheared in numerous places and it was crushed inward along the window belt-rail; its left front corner bore marks indicating that it had struck the left bridge-truss; the tight-lock coupler at the rear was broken through the shank. Unit No. 6, a diner-kitchen car, the front section of an articulated two-unit car, became derailed and struck the bridge truss, causing the bridge to collapse; it broke loose from the preceding unit, struck the west bridge-abutment with such force that the impact moved the abutment 11½ inches out of line, passed over the abutment, overturned to the left down the embankment west of the bridge, stopped upside down, and was practically demolished; the steel end-sill was broken loose from the aluminum alloy center-sills, which were broken about the middle of the car and were badly bent in other places; all the occupants of this unit were killed. Unit No. 7, a dining car, became derailed and was deflected to the left by the impact with the preceding car; it turned at an angle of 45° and stopped about 90 feet south of the track in the river bed; the body of the car was demolished and the frame badly distorted; the center-sills were broken just back of the bolster. Of the 24 persons killed, 21 were occupants of units Nos. 6 and 7. Unit No. 8, a dormitory-club car, became derailed, was whirled by the deflecting motion of the preceding unit, and, using the bridge frame as a fulcrum, struck the left bridge-truss with an impact sufficient to demolish the truss; the center-sills were broken at the rear bolster, at the needle beams, and at the rear end-sill; the body above the floor line was badly crushed and twisted; unit No. 9, dragging heavily as the whirling motion was being executed, caused the center-sills of unit No. 8 to be broken through at the rear end; unit No. 8 fell to the river bed and stopped upright but off its trucks; it was crushed badly at both ends. Unit No. 9, a Pullman sleeping car, articulated with unit No. 10, became derailed and dropped through the bridge

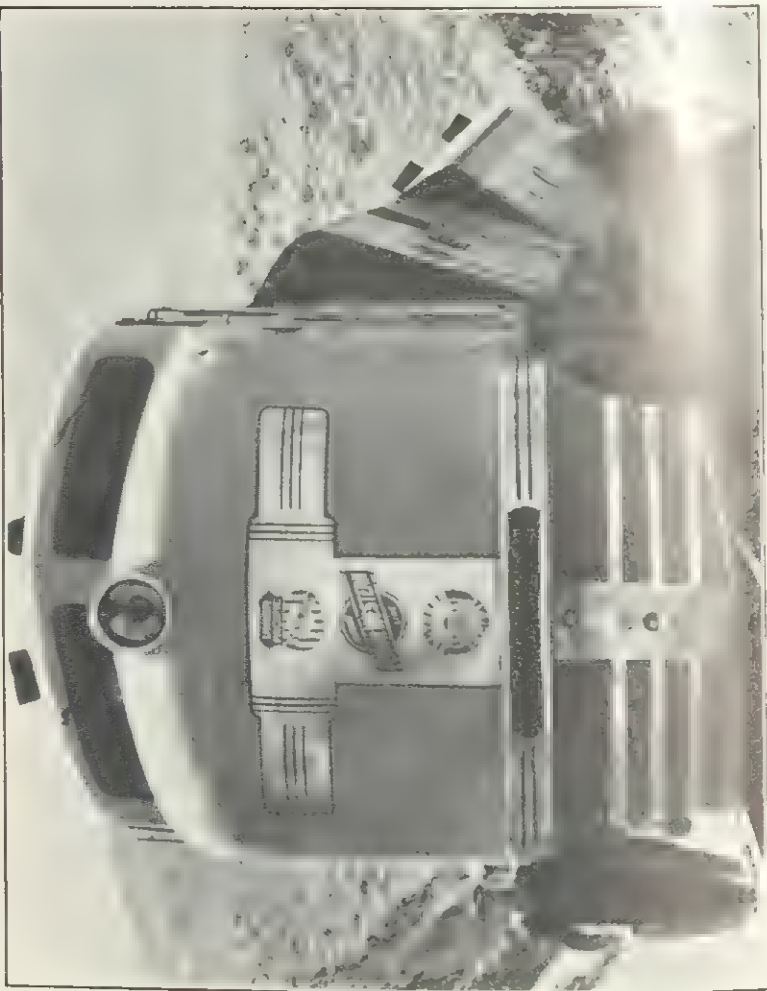


FIGURE 3 View of the three power units, showing detailed condition of rail units



FIGURE 4 View of third to twelfth units, inclusive

opening to the river bed, stopping upright, south of and at an angle of 30° to the track; its rear end was crushed inward as far as the cross-bearer or about 15 feet from the articulated joint; the coupler-head was broken off, and the center-sills were crushed through; the roof was crushed inward by unit No. 10 falling on it; unit No. 9 was demolished; two passengers and one porter were killed. Unit No. 10, a Pullman sleeping car, became derailed, fell through the bridge opening, and stopped on the tracks between units Nos. 8 and 9, and on the overturned floor structure of the bridge; one end was pointed upward; this car was crushed and distorted. These three cars, units Nos. 8, 9, and 10, were entangled with the demolished bridge structure. Unit No. 11, a Pullman sleeping car, articulated with unit No. 12, became derailed to the south at an angle of 25° to the track and stopped upright in the river with its front end badly damaged and its rear end suspended from the east bridge-abutment. Unit No. 12, a Pullman sleeping car, became derailed, but remained coupled to unit No. 11 and stopped upright on the embankment east of the bridge opening; one end was damaged slightly. Unit No. 13, a Pullman sleeping car, articulated with unit No. 14, became derailed but remained coupled to the unit at each end and stopped upright, slightly damaged, with its front truck on the embankment and its rear truck on the ties. Unit No. 14, a Pullman sleeping car, became derailed at the front end only and remained coupled at each end. Units Nos. 15, 16, and 17 were not derailed and sustained but slight damage.

The train-service employee injured was the conductor.

SUMMARY OF EVIDENCE

Engineman Hecox stated that when approaching the point of accident the train was moving, as indicated by the speedometer, at a speed of 60 miles per hour and the power unit was riding smoothly. The automatic block signals displayed proceed indications. The headlight was focused properly and was burning brightly. As the train entered the curve at the point of accident, he saw an object, which later he found to be a green tumbleweed, lying on the rail at a distance of about 300 feet. Upon reaching that point his power unit became derailed and his first thought was that his train had struck a rock. He shut off power and applied the electromagnetic brakes in full-service application; the train stopped in a distance of about 900 feet. It was clear and dark at the time of the accident, which occurred at 9:33 p. m. He stated that the track was in excellent condition. After stopping he examined the pilot but found there were no marks indicating that it had struck a rock. Power unit No. 1 was upright but the left wheels were outside the left rail



FIGURE 5. —View of "Pullman" sixth unit, showing damaged condition of roof.



Figure 3. View of Messing's location.

and the right wheels inside the right rail. The unit had been supported upon the rails and was prevented from overturning by the motor housings and spring planks. He proceeded to Harney on foot, ordered the train, and about 11 p. m. returned to the scene of the accident. He examined the track for some distance to the rear of the train and marks were found on the ties or rails east of the point of derailment. The green tumbleweed, which had been pushed aside by the train, was found lying near the fourteenth unit of the train and he threw it over the embankment. About 8 feet down the embankment there was a track clawbar. Looking under the fourteenth unit he observed that a rail-joint had been disconnected on the high or south rail at a point about 160 feet east of bridge 518.54. The angle-bars had been removed and, on the first tie west of this joint, a tie plate was secured inward about 4 or 6 inches from the normal position for a tie plate; the two outside spikes were fully driven, but the two inside spikes were driven only part way. There were about 20 loose spikes lying adjacent to the disconnected joint. Two spikes, driven halfway, were at the south end of the second tie west of the joint and about 6 inches distant from the tie plate, which was in normal position. A drift pin was lying near the joint. The disconnected rail was lying on its side with its base toward the north and its receiving end near the north companion rail. The two bond wires were straightened out, stretched in a northwesterly direction, and torn loose from the receiving end of the disconnected rail, but still attached to the leaving rail. The ties were in their original positions in the ballast. A close-up photograph taken under the fourteenth unit shortly after the occurrence of the accident was shown to Engineman Hecox. This photograph reveals that angle-bars had been removed at a rail joint; track bolts, nuts, and tight-lock washers were lying adjacent to this joint. Track spikes had been drawn from the undisturbed tie plate at the west end of the leaving rail; all track spikes and the tie plate had been removed from the south end of the first tie west of the disconnected joint. A tie plate was placed inward about 4 or 5 inches from the normal alignment for a tie plate; there were two spikes fully driven in the two outer holes of this tie plate and in the two inside holes there were two spikes with their heads about 3 inches above the top of the tie; the shanks of the latter spikes were slightly bent and abraded, which indicated that they had been partially withdrawn. Several loose spikes were lying on the ballast near the south end of the ties. The ties were in alignment at their ends and were tightly secured by the ballast. The two bond wires were still attached to the west end of the leaving rail at the disconnected joint; they were straightened out and extended diagonally



FIGURE 8.—View of ties Nos. 1 and 2, misaligned tie-plate, bond wires, nuts, washers, and fulcrum spikes in tie No. 2.



FIGURE 8.—View of ties Nos. 1 and 2, misaligned tie-plate, bond wires, nuts, washers, and fulcrum spikes in tie No. 2.

across the line of the track. Engineman Hecox identified this photograph as portraying conditions in the immediate vicinity of the disconnected rail joint exactly as he saw them.

Firemen Kelley stated that, approaching the point of accident he and the electrician were in the forward end of power unit No. 2 endeavoring to start the motor when he felt a settling and skidding sensation, which indicated that the train had become derailed. After the accident he was engaged for some time in rescue work. It was about 3 a. m. when he first had an opportunity to observe track conditions at the point of derailment. He corroborated Engineman Hecox's statement in all essential details. It was his opinion that during the derailment some force exerting pressure against the east side of the rail had moved the displaced rail toward the north side from the point where it had been respiked, and that the rail in question had been arranged to form a derailer.

District Road Foreman of Engines Fogus stated that he was in power unit No. 2 at the time of the accident. In response to a signal indicating motor trouble in power unit No. 2 he had left the control cab of power unit No. 1 about 1 minute before the accident occurred. He had observed that the train was riding normally and was moving, as indicated by the speedometer, at a speed of 60 miles per hour. The accident occurred about 9:33 p. m. It was his opinion that the wheels of power unit No. 2 were striking the ties as the rough-riding action was quite noticeable. The unit listed considerably to the left from the point of derailment to the point where it stopped. After the train stopped he examined the equipment and found that the wheels of power unit No. 2 had been in contact with the ties. The pilot was nicked and loosened on the left front portion. There were marks on the first pair of wheels of power unit No. 1, indicating that they had been in contact with numerous objects. The motors, gear housings, and pedestal binder-bolts had been in contact with the rails and, acting as guides, prevented power units Nos. 1 and 2 from leaving the track. The right and the left wheels were about 10 inches to the left of their respective rails. Power units Nos. 1 and 2 were not greatly damaged and after being re-railed were able to proceed under their own power. Power unit No. 3 became derailed and, inclining at an angle to the left, stopped with its front end about 3 or 4 feet above the top of the rail and its rear end down the bank. All three power units had been sliding on the rails. About 11 p. m. he proceeded toward the rear of the train and discovered that bridge 518.54 had been destroyed. The last three cars in the train remained on the rails: the fourth car from the rear, or the fourteenth unit, was upright but its forward truck was derailed. The track beneath this car was observed to be as described by Engineman Hecox. There

were several marks on the displaced rail, caused by its being struck by some blunt object. There were several loose spikes, which appeared to have been freshly removed from the ties, lying near the opening made by the rail being misaligned.

Electrician Baumann stated that his duties as electrician in charge of the motors required him to ride No. 101 regularly. Approaching the point of accident he was in power unit No. 2 endeavoring to start a motor which was giving trouble. Just prior to the derailment the train was riding normally. He said that he felt the unit leave the rail and then felt a skidding sensation combined with a wobbling action. After the train stopped he found that the power units were derailed but there were no marks on the pilot which indicated it had struck rocks or other objects. Sometime later he proceeded to the rear of the train and found conditions under the fourteenth unit to be as described by Engineman Hecox. He observed that the bond wires were stretched diagonally across the track at an angle to the running rail. The ballast adjacent to the displaced rail was not disturbed. He found marks on the truck binder bolts and motor housings, which indicated that they had been in contact with the rails. The binder bolts and motor housings served as guides and prevented the power units leaving the roadbed after derailment occurred. It was his opinion that the rail in question had been moved inward and secured in that position.

Brakeman Thomas stated that when leaving Carlin an air-brake running test was made and the brakes functioned properly en route. Approaching the point of accident he was in unit No. 4 and it was riding smoothly. The train was not exceeding the speed restrictions. He had maintained a lookout around curves and there were no indications of defective equipment. A heavy brake application was felt, followed by rough riding, after which the unit was overturned down the embankment and stopped on its side. After the accident, being busy with relief work, he did not have an opportunity to examine either the track or the equipment for some time. His observation as to the track condition existing under the fourteenth unit corroborated that given by Engineman Hecox. He thought that the spikes had been removed from twelve ties under the receiving rail.

Brakeman Webster stated that by means of an air gauge located between the sixteenth and the seventeenth units, an air-brake running test was observed when leaving Carlin. He remained in this location, maintaining a lookout around curves, until the accident occurred. There was no indication of defective equipment. The train stopped abruptly and he went back immediately to afford flag protection.

Assistant Superintendent Foley stated that he arrived at the scene of the accident about 11:30 p. m., August 12. He examined the track and equipment in order to determine the cause. In effect, he corroborated Engineman Hecox's statement as to the track conditions under the fourteenth unit. He found that the bond wires attached to the rail immediately east of the joint involved, were stretched diagonally in a northwesterly direction but were broken loose from the displaced rail in question. The south tie plate on tie No. 2 bore a mark similar to a flange mark. There was an indentation on the ball of the receiving end of the overturned rail which appeared to have been made by a wheel flange striking the end of this rail. A number of track spikes, slightly bent and lying loose between the rails, bore marks indicating that they had been drawn by a clawbar. Spikes in the north end of the south tie plate on tie No. 1 bore marks of abrasion. The track ballast was undisturbed. There was no indication of derailment east of the displaced rail.

Assistant Division Engineer Lundy stated that he arrived at the scene of derailment on August 13 and examined the track and the equipment. From the initial point of derailment to a point about 1,000 feet eastward he found no mark of derailment or indication of dragging equipment. The derailment occurred on the south or high rail, at a point 169.5 feet east of bridge 518.54. A sketch, drawn to scale, showing track conditions was used to illustrate his statement. The track was laid on a 3° curve with a superelevation of 4 1/8 inches on the south rail. He observed that the angle bars had been removed from the joint at the point of derailment and thrown down the embankment; angle-bar bolts and nuts were lying adjacent to the track; none was broken or cut, which indicated that they had been removed by a wrench. All track spikes at the west end of the leaving rail at this joint had been drawn; however, the leaving rail and tie-plate were undisturbed. All spikes and the joint tie-plate at the south end of the first tie west of this joint, hereinafter referred to as tie No. 1, had been removed, and an intermediate tie-plate was placed 4 5/8 inches inward from the normal position of the tie-plate which had been removed; there were two spikes fully driven in the two outer holes of this tie-plate and in the two inside spike holes there were two spikes with the heads about 3 1/4 inches above the tie and with the shanks bent slightly to the north; the two latter spikes had the appearance of being partially drawn. The position of the misplaced tie-plate and the condition of the spikes which secured it indicated to him that the receiving end of the rail at the point of derailment had been moved

and secured 1 5/8 inches inward from its normal position. All inside spikes were drawn from the following nine ties. Two spikes were driven close to each other and equidistant from the normal position of the rail and 8 1/4 inches from the south end of the section west of the joint in question, hereinafter referred to as tie No. 2; the heads were turned outward and protruded a distance of 2 inches above the top of the tie. There were four blocks of wood, each of which was about 2 inches by 3 inches by 6 inches, lying near ties Nos. 1 and 2. The rail immediately west of the joint in question was found lying on its side with its base toward the north and its receiving end 1 5/8 inches from the north rail and pointing diagonally in a southwesterly direction across the track. The next rail westward on the left side was along the edge of the ballast and down the embankment to the south. These rails evidently had been moved by some force striking at an angle, as evidenced by marks on the receiving end of the first misplaced rail. The north rails were undamaged and undisturbed. Starting at the third tie west of the joint in question the south ends of all ties were crushed and damaged by wheels, the damage increasing progressively westward. At the time of observation the fourteenth unit was standing with its west end 20 feet west of the joint involved.

Chief Engineer Kirkbride stated that he arrived at the scene of accident at 1 p. m., August 13. He found that the track conditions and the derailed equipment had remained undisturbed from the time of derailment because of waiting for his inspection. As a result of his examination measurements were taken at the point of derailment and a sketch was prepared under his supervision; the description of the conditions at this point, made by Assistant Division Engineer Lundy, was based upon this sketch. The two bond wires were straightened out and were reduced in section, which condition indicated tensile strain; the fiber denoted drawn conditions similar to that produced when metal is tested in tension. All these conditions indicated that the bond wires were forcibly torn away from the receiving rail. Detailed examination of the misaligned tie plate disclosed that the two outer spikes were fully driven, but the two inside spikes projected above the top of the tie plate; the heads of the eastward and the westward spikes were 3 1/4 inches and 3 1/2 inches, respectively, above the tie plate. It was possible to remove the westward spike by means of thumb and forefinger; the eastward spike was not touched. It was his opinion that this condition of the spikes was caused by the left front wheel of power unit No. 1, as it left the leaving rail, engaging the outside surface of the ball of the receiving, or misaligned rail, then dropping to the base and running

thereon a distance of 20 feet before leaving the rail. This was indicated by the wheel marks starting outward in a gradual taper to a point where the marks left the rail. The pressure downward on the outer edge of the ball of the rail tended to press the rail inward against the two inside spikes. This force was resisted by the rail strength being arched against the direction of the force. There was a tendency for the train to follow tangential direction with a centrifugal force in proportion to its speed of 60 miles per hour. The misaligned rail, being engaged by the pilot casting sliding upon it, was curving in a direction divergent to that of the train; therefore, the rail could overturn in one direction only, that being outward. The result was that the eastward end of the misaligned rail revolved on the tie plate under the heads of the two outside spikes while the rail flange was pulling the two inside spikes upward sufficiently to turn clear of them. Simultaneously, the rail was moved westward because of the friction created by the pilot casting running in contact with the ball of the rail. A movement of $10\frac{1}{2}$ inches was sufficient for the rail end to clear the spikes. Subsequent wheel blows kicked the rail inward to its final position near the north rail. The west end of the misaligned rail, still attached to the succeeding rail, was pounded into the ballast and covered by debris and equipment. The track was gaged at joints and centers a distance of 11 rail lengths eastward from the point of derailment. The south rail had a superelevation varying between 4 and $4\frac{1}{8}$ inches, being $4\frac{1}{8}$ inches at the point of derailment. The gage varied between 4 feet $8\frac{1}{2}$ inches and 4 feet $8\frac{7}{8}$ inches, being 4 feet $8\frac{3}{4}$ inches at the point of derailment. A series of tests was conducted to determine the actual force necessary to move a rail inward in the manner in which it appeared to have been done on the date of the accident. A replica of the track at the point of accident was constructed, with the exception that sand ballast was used, and a spring balance was attached to measure the energy necessary to move a rail the distance that the misaligned rail was moved at the point of accident; the energy expended was as follows:

	Number of ties with inside spikes pulled	Movement of rail inward	
		1 inches	$4\frac{1}{2}$ inches
		Pounds	Pounds
8		109	712.5
10		115.5	495
11		363	412.5
12		313.5	393

Using a 10-inch journal jack, this test was accomplished with such ease that the jack ratchet was operated without a bar. A 10-inch

journal jack could readily be inserted between the spikes, which were $8\frac{1}{4}$ inches from the end of tie No. 2, and the ball of the rail. A test was made in which only 5 minutes were consumed in uncoupling the joint angle bars, pulling the inside spikes from eight ties, and moving the rail inward $4\frac{1}{2}$ inches; in this test a track-lining bar was used to move the rail.

Roadmaster Williamson stated that his last inspection of the track involved was on the morning of August 11, when he rode over it on a motor car; 10 days prior to the day of the accident a walking inspection had been made; in both instances the track at the curve involved was in excellent condition. He arrived at the scene of the accident about 11:30 p. m., August 12, and found that the south rail, at the initial point of derailment, had been loosened and moved inward. He corroborated Assistant Division Engineer Lundy's statement in all essential details. The bond wires extended diagonally across the track. The ballast was undisturbed and there had been no authorized movement of ties at this place for 18 months past. Loose spikes, slightly bent and lying adjacent to the normal location of the south rail, displayed claw-bar marks. The top of the ball of the misplaced rail had been recently painted with dark paint, which was dry when he examined it.

Section Foreman Bianchini stated that he had been over the track in the vicinity of the point of accident on August 11 and it was in excellent condition at that time. The ballast and the track had been undisturbed for some time. There were no tools missing from the complement assigned to his gang. He arrived at the scene of the accident about 1 hour after its occurrence. He found that the conditions were as stated by Assistant Division Engineer Lundy.

Section Foreman Jones, of the Western Pacific Railroad, stated that about 5 a. m., August 13, he observed the track condition at the point of derailment. He confirmed the testimony of other witnesses regarding the various positions in which the members of the track structure lay.

Bridge Foreman Stone stated that on August 5, 1939, he had completed the work of reinforcing bridge 518.54 and it was in excellent condition.

Signal Maintainer Grotegut stated that he arrived at the scene of the accident about 11:45 p. m., August 12. His testimony corroborated that of other witnesses as to the condition of the track and the equipment. He stated that about daylight, August 13, his attention was called to the fact that there was paint on the ball of the misplaced rail.

Signal Maintainer Burg, who arrived at the scene of the accident about 2 hours after its occurrence, stated that the track conditions at the scene of the accident indicated deliberate sabotage.

Signal Maintainer Hutchins stated that he arrived at the scene of the accident at 5:45 a. m., August 13. He examined the signal apparatus to the rear of the train and found that it functioned properly. About 6:10 a. m. he crawled under the fourteenth unit and photographed the displaced rail, ties Nos. 1 and 2, and the tie plate which had been spiked inward from the normal position for a tie plate: all pictures were taken in natural light. At this time he observed that the ballast was undisturbed and the bond wires were attached to the leaving rail but were broken loose from the receiving rail. It was his opinion that after the angle bars were removed a rail could be moved inward 16 inches from its normal position before the bond wire would be broken.

Signal Maintainer Gavey, of the Western Pacific Railroad, stated that about 8 a. m. photographs of the track conditions under the fourteenth unit were taken by him. His testimony as to the positions in which various track structure members lay corroborated that of other witnesses.

Herschel Smythe, a resident of Beowawe, Nev., stated that as a member of the coroner's jury he viewed the derailed equipment and damaged track at 6 a. m., August 13. He observed that the fourteenth unit was derailed at its front end only, and there was a clearance of about 20 inches between the track and the bottom of the car. He crawled under the car that he might distinctly see the condition of the track. The angle bars had been removed at a joint of the south rail at a point about 167 feet east of a bridge over the Humboldt River. The leaving rail was in its normal position but the receiving rail was lying on its side near the north companion rail and the ball was toward the south. On the south side of the top of the ball of the rail at the receiving end there was a mark which had the appearance of having been caused by a wheel flange striking downward. On the south end of the first tie west of the leaving rail at the disconnected joint, a tie plate was secured inward about 4 inches from the original position. The two outside spikes in this plate were fully driven but the two inside spikes protruded about half the length above the tie and apparently had been partially drawn by the revolving action of the misplaced rail during the progress of overturning. There were two spikes, driven about half their length and at an angle outward, a short distance from the normal position for a tie plate; he believed that these latter spikes had been used as a fulcrum in the process of prying the misplaced

rail over a distance of 4 inches. A track-bolt nut lying near the disconnected joint bore indications of having been recently removed by a wrench. There were several small blocks of wood about 7 inches long adjacent to the track at that point. The tie plates and outside spikes on the south ends of a number of ties westward from the disconnected joint were still in place, but nearly all the inside spikes on these ties were drawn; of the spikes which were lying adjacent to the track none was sheared or broken; they bore indications of having been drawn by a clawbar, being slightly bent and the bottom surface of the heads being freshly scarred. The bond wires, still connected to the leaving rail but broken loose from the receiving rail, were stretched out and extended diagonally across the track. It was his opinion that the rail joint was disconnected, the inside spikes drawn, and the receiving rail moved inward about 4 inches and secured on another tie plate as a derailer. When the train reached this point the first wheel flange struck the end of the receiving rail, revolved it, and then kicked it to its final position near the north rail. His opinion, based on the evidence, was that some person had deliberately arranged the track at the point of accident and that it was an act of sabotage.

P. E. Graf, chief engineer, Elko Power Co., Elko, Nev., stated that he took a number of photographs under unit No. 14 at 11:45 a. m., August 13. He corroborated the statement of Assistant Division Engineer Lundy regarding the position of the various parts of the track structure.

Warren Monroe, newspaper publisher, of Elko, stated that he took photographs of track conditions under the fourteenth unit at 9:30 a. m., August 13. He substantiated, in effect, the testimony of other witnesses.

William VanVolkenburg, a resident of Elko, stated that at 11:45 p. m., August 12, he observed the track conditions under the fourteenth unit. He corroborated the testimony of Assistant Division Engineer Lundy regarding the positions of various track structure members, and the marks which were sustained by them.

According to data furnished by the Federal Bureau of Investigation, the spike holes at the inside of the misaligned tie plate extended into the tie 4.6 and 4.95 inches, respectively. The heads of the eastward and the westward spikes were 3.1 and 2.88 inches, respectively, above the surface of the tie plate.

According to the train sheet, the last train which passed the point of derailment prior to No. 101 was a west-bound freight train, which passed shortly after 6 p. m., or about 3 hours 30 minutes before the accident occurred.

According to data submitted by the carrier, a rail detector-car was last operated over the track involved on June 19, 1939; the last prior inspection was on October 8, 1938, there being an interval of 8 months 11 days between these inspections. There were no rail defects recorded in the vicinity of the point of accident.

Shortly after the accident a 25-ton Buda ratchet jack was found in the bed of the river a distance of 264 feet downstream from the railroad bridge. It was greasy and there were no indications of rust. The plunger was extended $4\frac{1}{2}$ inches, a distance which would fit readily between a rail moved inward about 4 inches and spikes located the same distance from the end of a tie as was the case on tie No. 2.

The streamline train, "City of San Francisco," was owned jointly as follows: C. & N. W., 21.63 percent; S. P., 34.19 percent; and U. P., 43.88 percent.

The center of gravity of the Diesel-powered units on this train was 57 inches above the top of the rail. The overturning speed on a 3° curve, with superelevation of 4 inches, is 124.5 miles per hour, and a speed of 60 miles per hour is well within the limits of safe practice as recommended by the American Railway Engineering Association.

The 3 power units were constructed by the Electro-Motive Corporation according to the carriers' specifications; the frames were of molybdenum steel, in rolled sections, the sides of 27-gage galvanized iron over $\frac{3}{8}$ -inch plywood, and the trucks were 6-wheel type with motors mounted on the leading and trailing axles of each truck. The cars were constructed by the Pullman-Standard Car Co. according to the carriers' specifications; the end sills, bolsters, and needle beams were of high tensile Cor-Ten steel, of welded construction, the yield point being a minimum of 50,000 pounds per square inch and the ultimate strength a minimum of 70,000 pounds per square inch. The center sills, side sills, posts, carlines, sheathing, roof, and all other framing were of aluminum alloy, the properties of which were as follows:

Material	Dimension	Minimum tensile strength per square inch	Minimum yield strength (at 2% offset) per square inch	Minimum elongation in 2 inches
	Inches	Pounds	Pounds	Percent
U. S. T. Sheet and plate	0.011-0.128	55,000	32,000	18
	.129-.258	55,000	32,000	17
	.259-.500	50,000	30,000	12
U. S. T. Rolled shapes		50,000	30,000	16
Extruded shapes		50,000	30,000	12
A17S-T Extruded shapes		35,000	26,000	18
4S $\frac{1}{2}$ H sheet	.051 @ .113	30,000	21,000	7
	.114- .203	30,000	21,000	6

† Approximate

Typical - were as follows:

	Pounds per square inch
17S-T	36,000
A17S-T	26,000
27S-T	24,000
4S-T	18,000

The specifications called for a buffing stress of 400,000 pounds at draft gear ends of buffers. All couplers were improved tight-lock, EMC design, rubber-cushioned draft gears. The construction of this train was completed December 27, 1937, and it was placed in service January 2, 1938. The builder's records indicate that this equipment was built according to Post Office Department specifications of 400,000 pounds buffing stress, with a safety factor of two, which fixes the minimum for actual failure at 800,000 pounds.

The records of the Pullman Car Company indicate that a test was conducted February 16, 1937, using a 7-foot 10-inch section of the underframe between the center of a car, and containing the center-sill, side-sill, bolsters, one steel cross bearer, and three aluminum floor supports. This section withstood a compression load of 880,000 pounds before any permanent deformation resulted. On September 17, 1939, a test was made on a section of the center-sill cut out of the frame of the car "Twin Peaks," which was the ninth unit in the damaged train. The results of this test were as follows:

	No. 1	No. 2	Specimen minimum
Yield point	55,000	35,000	50,000
Compressive strength	75,850	55,000	50,000
Elongation in 2 inches	20.7	20.4	
Reduction of area	28.9	20.4	

On October 3, 1939, the Aluminum Co. of America, at its research laboratories, New Kensington, Pa., tested for tensile properties a portion of the web, the bottom flange of one channel, and the bottom angle of the center-sill of the ninth unit, the results of these tests being as follows:

	Tensile strength	Yield strength set at 2 percent per square inch	Elongation in 2 inches	Reduction of area
	Pounds	Pounds	Percent	Percent
Angle	36,320	37,500	25.0	38.0
Channel web	36,040	34,700	24.0	34.5
Channel toe	36,740	37,100	24.5	37.7
Channel heel	36,770	39,100	21.0	40.8
Average	36,470	37,100	21.4	37.4
Specimen minimum	50,000	30,000	16.0	

The following is a statement of damage, as formulated by the carriers and the Pullman Co.:

Position in train	Name	Damage
Unit No. 1	F. 1 Power unit	\$11,000 00
Unit No. 2	F. 2 Power unit	11,500 00
Unit No. 3	F. 3 Power unit	14,000 00
Unit No. 4	F. 101 Baggage-dormitory	43,500 00
Unit No. 5	F. 101 Market Street	45,000 00
Unit No. 6	F. 401 Presidio	117,043 29
Unit No. 7	F. 602 Mission Dolores	103,199 37
Unit No. 8	F. 701 Embarcadero	118,337 90
Unit No. 9	120 Twin Peaks	90,658 36
Unit No. 10	121 Chinatown	189,446 28
Unit No. 11	122 Fisherman's Wharf	18,500 00
Unit No. 12	123 Golden Gate Park	8,500 00
Unit No. 17	F. Nob Hill	2,600 00
Total		670,315 20

* Demolished.

OBSERVATIONS OF COMMISSION'S INSPECTORS

The Commission's inspectors examined the track a distance of one-half mile east of the point of derailment and found it to be maintained in excellent condition; no indication was found of wheel marks or dragging equipment east of a point 169.5 feet east of bridge 518.54. At this point the indications were that the joint on the high rail had been disconnected, the angle bars removed, and the east end of the receiving rail moved inward about $4\frac{5}{8}$ inches on the tie. The tie itself gave evidence that the tie plate was misplaced, as the outline of the original plate seat was clearly defined and the condition of the spike holes indicated fresh and recent disturbance of the wood fiber which would result from drawing a spike. A dent in the receiving end of the misaligned rail at the top of the ball on the south side indicated that the rail had been struck by some heavy object; this dent was so located that if the receiving rail were moved inward about $4\frac{1}{2}$ inches the flange of a wheel would strike the end at that point. There were flange marks on the outside portion of the base of this rail. There were no indications that this rail was curve-worn. The wheels of power unit No. 1 were examined at Carlin; there was a deep cut on the back of the flange of the left front wheel; this cut was $\frac{3}{4}$ inch in diameter and $\frac{3}{16}$ inch deep; the flange, gaged $\frac{5}{8}$ inch above the tread, was $1\frac{5}{32}$ inches thick. There were several horseshoe-shaped abrasions on the back of the flange; a rolling test disclosed that these abrasions probably were caused by this wheel being in contact with angle-bar bolts. The trucks of the power units were examined, and it was observed that the motor housings and the pedestal binder-bolts showed considerable wear, indicating abrasive action obviously sustained by sliding on the top of the rails. Grooves on the left side of the motor housings of power units Nos. 1, 2, and 3 indicated contact with the top



FIG. 10. View of receiving end of mis. at. of rail, showing flange mark on end of corner of ball

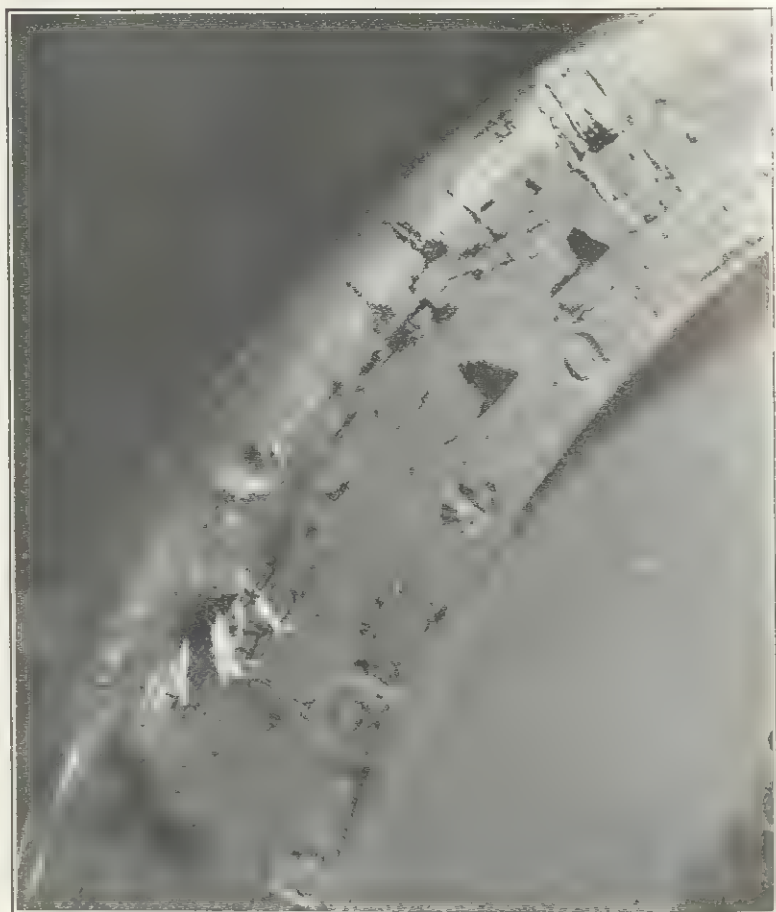


FIGURE 10. View of back of rail of truck No. 1 which was struck by engine.

of the rails: the housings the grooves were worn to a depth which varied from $\frac{1}{16}$ to $\frac{1}{8}$ inch. These marks were blue in color, which indicated friction burning. Holes in the motor housings indicated probable contact with the bridge guardrail. The inner faces of the right-pedestal binder-bolt nuts, which were 1-inch hexagonal nuts, were severely abraded and burned because of contact with the outside of the ball of the north rail, except one nut at the right No. 2 wheel of truck No. 1 of power unit No. 1, which was worn to less than half its thickness; it was fused to its bolt, evidently due to sliding on top of the rail head. There was somewhat greater wear on the motor housings and the pedestal binder-bolts on unit No. 1 than on the two following units.

The inspectors observed that the cars withstood impact shock up to a certain degree, after which some of them collapsed. An absence of intermediate stages of damage was noticeable; in cases of badly damaged material the state of damage was total collapse. One under-frame indicated compression failure. There was but little damage in cases where the tight-lock couplers and articulated joints held. The only instance of telescoping was at the ninth unit; it became separated at its articulated joint and the shank of the tight-lock coupler at the opposite end failed. The greatest damage sustained by the cars collectively consisted of failure of the superstructures. The aluminum alloy metal in many cases tore loose from the rivets and was cut through in places where it had been dragged on the ballast; very few steel rivets were sheared off. There was no indication of dispersion of strain; in many instances a badly torn section was adjacent to a section which had not buckled in the slightest degree. In many instances the tie straps between center-sill flanges were buckled.

DISCUSSION

According to the evidence, No. 101 was not moving in excess of the maximum authorized speed of 60 miles per hour when it became derailed. The train was riding smoothly and there was no indication of defective equipment. Prior to arrival at the point of derailment the track was structurally sound, maintained in excellent condition, and the automatic block signals were displaying proceed indications. Upon entering the curve on which the accident occurred, the engineman saw an object about 300 feet distant, which later was found to be a tumble weed, lying on the south or high rail of the curve. When the train reached that point the front truck became derailed and the engineman thought that a rock had been struck. Subsequent examination of the track disclosed that on the south rail the angle bars had been removed from a joint located 169.5 feet east of bridge 518.54, and the angle bars, bolts, nuts, and tight-lock washers were

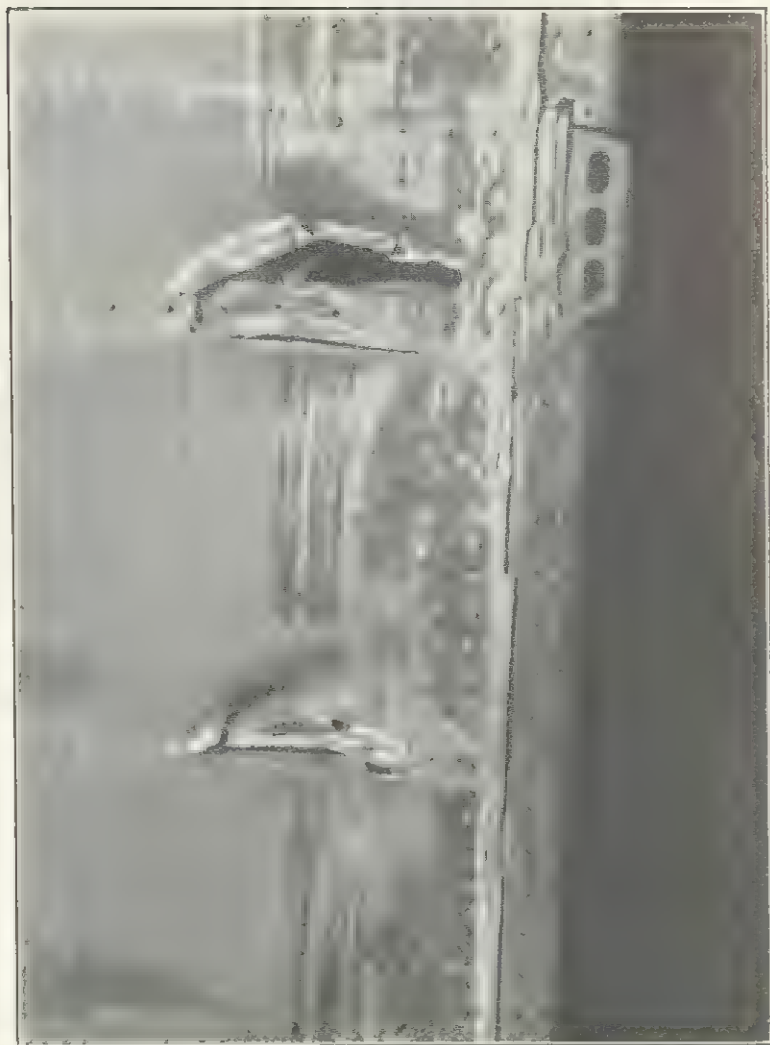


FIGURE 11.—View of fourth unit, showing results of striking on rock ballast



FIGURE 12.—View of fourth and fifth units, showing results of striking bridge truss

lying adjacent to the disconnected rail. Apparently a wrench had been used to remove the nuts, as none of the bolts was cut or broken. The joint tie plate on the first tie beneath the receiving end of the disconnected rail had been removed and an intermediate tie plate had been placed $4\frac{5}{8}$ inches inward from the alinement of the south rail and fully spiked with four spikes. The position of this plate was not a result of the tie moving laterally under impact resulting from the derailment, as there was no indication in the ballast of any tie being moved from its original position. The tie plate had been misplaced, as the outline of the original plate seat on the tie was clearly defined, and the spike holes indicated fresh and recent disturbance of the wood fiber such as would follow the action of withdrawing a spike. Of the four spikes holding the misaligned tie plate, the two outside spikes were fully driven while the two inside spikes were found withdrawn a distance of 2.88 and 3.1 inches, respectively, above the plate; this indicated a revolving lateral motion of the receiving rail which caused the inside spikes to be drawn sufficiently to permit the rail to roll free. The rail at the same time was being pushed westward because of the friction imparted to it by the pilot casting, a longitudinal movement of $10\frac{1}{2}$ inches being sufficient to clear the spikes in order that the rail could be pushed laterally toward the north rail. The receiving rail having been moved inward $4\frac{5}{8}$ inches provided a gap approximately $1\frac{5}{8}$ inches, as the ball of the rail was 3 inches in width. The front wheel flange being $1\frac{5}{32}$ inches in thickness could readily fit into the gap. As the misaligned rail was on the high side of a 3° curve the centrifugal force of 60 miles per hour would throw the wheel flange tightly against the ball of the leaving rail, and prevent the flange from riding over the ball of the receiving rail. Further observation disclosed that all four spikes in the plate at the end of the leaving rail had been drawn without disturbing the position of the rail or tie plate. All inside spikes on the south ends of at least nine ties following the point of derailment had been drawn. A dent on the end of the receiving rail at the top and on the south side of the ball indicated that the flange of a wheel had struck the end of this rail. There was a corresponding mark on the back of the flange of the left front wheel of power unit No. 1. There were no damaged angle bars or bolts, which would have been the case had the rail been in proper alinement when the train approached. The evidence is conclusive that this rail had been misaligned before the accident occurred.

The investigation developed that the receiving rail, after being freed by the removal of the angle bars and spikes, was pushed over by means of either a journal jack or track bar; it is probable that the former was used, as a jack was recovered from the river bed near

the scene of the accident. After the accident an unusual spike arrangement was found on tie No. 2, which would permit a journal jack to be placed between the spikes, driven $8\frac{3}{4}$ inches from the end of the tie and the web of a rail in normal position. With the angle bars removed there would be sufficient slack in the signal bond wires at the rail joint to permit a rail to be moved inward about 16 inches before the bond wires would be broken; and a movement of only 12 inches would be insufficient to disturb the circuit in such manner as to cause the block signals immediately east of the point of accident to display restrictive indications.

The ball of the misaligned rail had been painted and a tumbleweed placed over the disconnected joint. As any irregularities of track alinement are clearly defined by the reflection of a headlight on the shining surface of the rails, it is reasonable to assume that these measures were taken so that the engineman of an approaching train would be unable to detect the damaged track condition.

About 3 hours intervened between the passage of the last prior train and No. 101. It was developed by tests that only a comparatively short time was required to disconnect a rail joint, draw the spikes, and realine a rail as had been done in this case.

When the power units became derailed on the curve, the first power unit traveled to the left a few inches, because of following a tangential line; however, the motor housings and the pedestal binder-bolts prevented the power unit from leaving the roadbed.

The cars involved in this accident were constructed, for the most part, of aluminum alloy. As shown by the records, these cars were designed and constructed in accordance with the requirements of the Post Office Department specifications for railway mail cars; the underframes were designed to withstand a buffing stress of 400,000 pounds. The Postal Department specifications require a safety factor of two in the calculation of buffing stresses, fixing the minimum for actual failure because of buffing shock at 800,000 pounds. To determine that the requirements of these specifications were complied with, the manufacturer apparently relied upon calculations and results of tests of a section of underframe similar to that of the cars in the "City of San Francisco." This section was 7 feet 10 inches in length and withstood a compression test of 880,000 pounds before permanent deformation occurred. After the accident, on September 17, 1939, similar tests were made at the Pullman Car Co. laboratory; a section of frame removed from the car "Twin Peaks" was used and the results indicated that the material was in accordance with the specifications.

On October 3, 1939, The Aluminum Co. of America, at its laboratory, conducted tests on a portion of the center-sill removed from

the car "Twin Peaks," the ninth unit, using a piece near the point where a fracture had occurred. The results of this test demonstrated that the material was well above the minimum requirements.

These cars withstood impact shock up to a certain degree, beyond which there was practically a total collapse; there appeared to be no intermediate stage of damage. A great amount of damage to the superstructures was sustained by the cars involved in this accident, especially those where the most fatalities occurred. The aluminum alloy sheathing, which forms a part of the girder construction of the car sides, manifested a tearing characteristic, in that the metal readily tore loose from the rivets; also it was cut and torn badly because of being dragged on the ballast. There was but little indication of dispersion of strain; in many instances a badly torn section was adjacent to one that did not buckle in the slightest degree.

Any attempt to draw conclusions as to what might have occurred had standard all-steel passenger cars been involved in this accident, would be purely conjectural and speculative.

CONCLUSION

This accident was caused by malicious tampering with the track.
Respectfully submitted.

S. N. MILLS, *Director*.

C

Suit Against S. P. to Open

First of the damage suits against the Southern Pacific for the wreck of the streamliner City of San Francisco near Carlin, Nev., August 12, 1939, goes to trial today before Federal Judge St. Sure. It is the case, says are permanent and he asks \$10,000 Edwin Hecox, engineer of the train is made a co-defendant

of Mrs. Elinor Wallar of Millbrae and her husband, H. R. Wallar. She asks \$20,000 for injuries she

TRAIN WRECK DAMAGE SUIT GOES TO JUDGE

(United Press)

SAN FRANCISCO, (Calif.)

A \$30,000 damage suit against the Southern Pacific railroad company growing out of the wreck of their spacious streamliner, "City of San Francisco" near Carlin, Nev., on August 12, 1939, was slated to be taken under advisement by Judge St. Sure today.

CHARGE NEGLIGENCE

Mrs. Elinor Wallar and her husband, H. R. Wallar of Millbrae, Calif., are plaintiffs in the case and charge in their complaint that the railroad company was negligent in its track repairs. One of the final witnesses today was 12-year-old Joe Bell, Jr. of Beowawe, Nev., who testified that he and his father heard hammering beneath one of the wrecked passenger cars the night of the wreck but that the noise stopped suddenly as they approached.

The elder Bell said he saw three or four section hands working on the track beneath one car but they halted when he neared. Both witnesses testified that the rail was being loosened after the wreck. The Southern Pacific company in its rebuttal called Mr. L. B. Deiley of Albuquerque, N. M., who said that shortly after the wreck as she walked along by the wrecked train, she saw a rail apparently four or five inches out of line with a tie plate respiked.

T. L. Williamson, Winnemucca Southern Pacific roadmaster, testified at the trial on September 27.

Streamliner Wreck Court Told It Was Sabotage

Thomas L. Williamson, Southern Pacific roadmaster, has reiterated his belief the wreck of the streamliner City of San Francisco, in which 24 people met death and 100 were injured, was the work of saboteurs.

Williamson took the stand in Federal Judge St. Sure's court here yesterday in connection with a \$30,000 damage suit filed by Mr. and Mrs. H. R. Wallar of Millbrae. She asks \$20,000 for personal injuries and her husband sought \$10,000 for loss of his wife's company.

The roadmaster testified he had gone to the scene of the wreck in Nevada, arriving there at 5 a. m. August 13, 1939. The wreck occurred at 9:30 p. m. the preceding evening.

He said he had found tie plates moved inward from four to eight inches and respiked so that any train passing over them would be derailed.

James Pearson, Southern Pacific employe, testified his tool box near the scene had been broken into and a timber bar removed. Thomas S. Stone, bridge crew foreman, testified that shortly after the accident he discovered a jack capable of lifting 20 tons had been stolen from his tool box. He found the jack not far from where the train piled up.

The case will be continued early next week. It is the first action filed as a result of the tragedy.

S.F. Chronicle 9/28-40

HARNEY WRECK CASE NEAR END

SAN FRANCISCO, Oct. 17. (UP)

A \$30,000 damage suit against the Southern Pacific railroad, first action growing out of the wrecking of the streamliner City of San Francisco in Nevada 14 months ago, was expected to be taken under advisement today by Federal Judge A. F. St. Sure.

The action was brought by Mrs. Elinor Wallar and H. R. Wallar of Millbrae, Calif. They charged the accident was due to negligence, not to sabotage.

One of the final witnesses was 12-year-old Joe Bell Jr. of Beowawe, Nev., who testified he and his father heard hammering beneath one of the wrecked passenger cars that halted suddenly as they approached. The elder Bell said he saw three or four section hands working on the track beneath the car, but that they halted when he neared. Both implied that a rail was being loosened.

In rebuttal, Southern Pacific attorneys called Mrs. L. B. Deiley of Albuquerque, N. M., who said shortly after the wreck as she walked along the train she saw a rail apparently four or five inches out of line with a tie plate respiked.

COURT DENIES DAMAGE PLEA

SAN FRANCISCO, March 3. (U.P.) The federal district court today denied \$50,000 damages to a San Jose, Calif., couple in the first damages suit arising from the 1939 wreck in Nevada of Southern Pacific's streamliner City of San Francisco in which 24 persons were killed and 110 injured.

Federal Judge A. F. St. Sure ruled out as "incredible" the contention of Mr. and Mrs. H. R. Wallar of San Jose that Southern Pacific manufactured the evidence on which it based its claim that sabotage caused the wreck.

Replying to the plaintiff's claim that the railroad's evidence concerning sabotage was "manufactured," Judge St. Sure declared that "such a suggestion is incredible because of the indisputable physical facts and the testimony of unimpeached witnesses was to the contrary."

He also said that the Wallars failed "to sustain the burden of proof by preponderance of the evidence."

The evidence, he declared, proved two unknown persons had derailed the train.

E. C. Mahoney, representing Mr. and Mrs. Wallar, said he did not know whether the case would be appealed until he had studied the opinion and the records.

DENIED

(United Press)

SAN FRANCISCO, (Calif.) — The federal district court here today denied \$50,000 damages to Mr. and Mrs. H. R. Wallar of San Jose as an outcome of the wreck of the City of San Francisco in Nevada on August 13, 1939. The suit was the first filed against the Southern Pacific. Judge St. Sure termed as "incredible" the contention of the Wallars that the Southern Pacific had manufactured its evidence for a basis of the sabotage claim.

S. P. Train Wreck

Sabotage, Says Court; Denies Damages

For the first time, the Federal Court yesterday confirmed the theory of sabotage as responsible for the wrecking of the Southern Pacific Streamliner City of San Francisco in Nevada a year and a half ago. An opinion, written by Federal Judge St. Sure, held that the dis-

killing 24 persons and injuring 110 was the work of vandals and caused damages to one of the injured, Mrs. Ethel Wallar of Mill-

Valle. Mrs. Wallar sued for \$20,000 and her husband, H. R. Wallar, asked \$10,000 for loss of her companionship.

The court entered judgment for the railroad, ordering the Wallars to pay the costs of suit. Similar actions for scores of thousands of dollars are pending as a result of the wreck.

Judge St. Sure's decision is in harmony with a finding by the Interstate Commerce Commission, which asserted in December, 1940, that malicious track tampering had plunged the 17-unit San Francisco-bound train off the tracks near Harney, Nev., on the night of August 12, 1939.

Commenting on testimony offered by the Wallars that evidence of derailment was manufactured after the wreck by employees of the railroad, the court asserted:

"A suggestion so incredible cannot be sustained against the indisputable physical facts and testimony of un-

Continued on Page 10, Col. 3

More on Wreck

Sabotage, Judge Rules

Continued from Page 1
impeached witnesses to the contrary."

Discussing the vandalism question, the court observed:

"After the wreck it was found that bolts of the anglebars holding the joints of the rails had been removed; spikes had been drawn from the receiving rail for approximately half its length, the rail moved over 4 1/2 inches and spiked down.

"The leaving rail appeared untampered with; brown paint had been smeared on the top or ball of the receiving rail for a distance of 26 feet."

Bond wires were undisturbed by this operation, the evidence showed, and Judge St. Sure observed that "thus was made what, in railroad parlance, is called a perfect derailer."

Testimony of the train engineer indicated, the Judge stated, that a Russian thistle had been pulled up by the roots and fastened to the ties where the track was spread, and that the paint smeared on the displaced rail simulated a shadow. The thistle and the paint camouflaged the track so that the engineer could not discover the spread rail in time to stop.

In connection with this testimony, Judge St. Sure stressed evidence discovered by the FBI confirming the sabotage claim.

Some time after the tragic accident the bed of the Humboldt river was raked near the scene of the wreck. Evidence showed that an iron clawbar was found in five feet of water, the court observed, and also an iron bar used as a handle for a buda journal.

TWO JACKETS FOUND IN RIVER NEARBY

Further probing brought to the surface a blue cloth zipper jacket, weighted with rocks; a spike maul, a small roll of wire. Later a second jacket was found.

As the second jacket came out of the water, a track wrench, 37 inches long, slid from its folds and was recovered. The jacket was tan colored and on its left front side there was a dark stain. Both jackets were of the type worn by laborers.

"Other tools were found, all bearing evidence of having been used by bridge repair men or section gangs employed by the Southern Pacific," Judge St. Sure commented. "It is the theory of defendants that the tools found were stolen from the company and were used by vandals in displacing the rail."

The Judge described the recovery of a tin lid from a paint can near the wreck scene as an "important find."

"The lid had mahogany-colored paint upon it, and the FBI found that it was identical with lids on cans of mahogany enamel manufactured by a St. Louis company," the court said. "Many witnesses who inspected the track saw mahogany-colored paint on the top and sides of the displaced rail."

"The FBI found that there was mahogany-colored paint on the stained tan zipper jacket. By spectrographic analysis it was determined that the mahogany paint upon the displaced rail, the tan zipper jacket and the paint on the can lid were all similar in composition and color."

The FBI, the court related, examined 198 samples of paint obtained from railroad supplies and from the vicinity of the wreck, and found these to be different from the paint on the can lid.

"This evidence alone persuasively supports the defendants' theory that the wreck was caused by vandalism and not by an agency under their control," the court ruled.

Streamliner Suit Won by S. P.

Nevada Wreck Not Company's Fault, Court Says

The Southern Pacific Railroad yesterday won the first court decision in the series of damage suits that have been filed against it by victims of the wreck of the streamliner "City of San Francisco" near Harney, Nevada, in 1939.

In United States District Court here, Federal Judge A. F. St. Sure threw out the \$30,000 damage suit of Mr. and Mrs. H. R. Wallar of Burlingame, ruling that the evidence clearly showed that the wreck of the train had been caused by vandalism or sabotage, and was not the railroad's fault.

His decision is expected to set a precedent in the several other damage cases pending as a result of the wreck, in which twenty-four persons were killed and sixty-three injured.

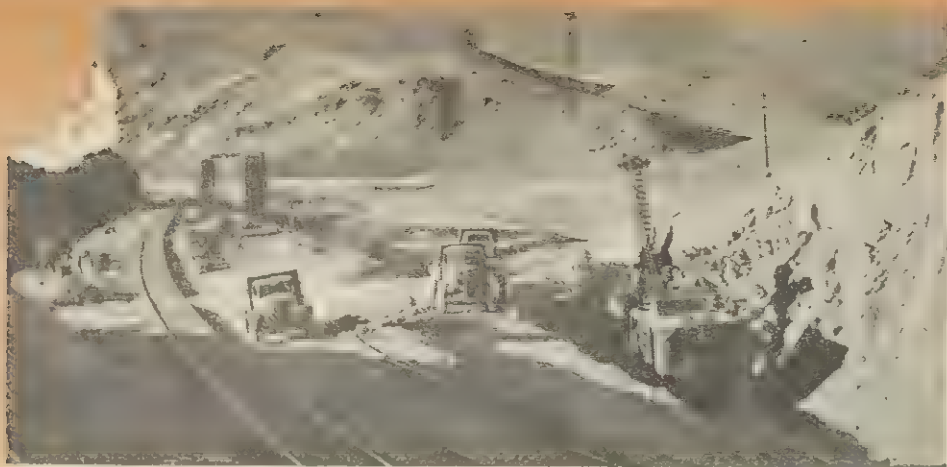
Mrs. Wallar suffered minor injuries in the accident. In their suit, the Wallars charged that the wreck was the railroad's fault, and that false evidence of sabotage had been deliberately manufactured by railroad employees.

This contention was vehemently ruled out by Judge St. Sure, who pointed out that the plaintiffs' evidence to that effect was "insufficient and unsubstantial" and added:

"A suggestion so incredible cannot be sustained against the indisputable physical facts and testimony of unimpeached witnesses to the contrary."

Much was also made in Judge St. Sure's ruling of a brilliant piece of scientific detective work by the Federal Bureau of Investigation, which conducted a lengthy probe into the wreck.

Circumstantially proved, the court contended, that the derailment of the train was the deliberate work of vandals.



Portion of the new track alignment at Harney, Nev., which involved the elimination of two bridges and a change in the channel of the Humboldt River. Steam shovel on right is shown gouging out the river's new channel where first water was turned through on Dec. 4.

Tracks and River Moved at Harney

A NEW line for the railroad, a new channel for the world's crookedest river—the Humboldt, and the elimination of two bridges, were the main objectives in a big construction job recently completed at Harney, Nev., on the Salt Lake Division. The project was larger than those usually programmed by a division with exclusive use of Company equipment and forces.

The line change, on a .3% grade, involved the moving of 3600 feet of track a maximum distance of 32 feet, and construction of two 30-foot fills. The two bridges were eliminated.

The new 1260-foot channel shortens the river by 800 feet and was constructed on a broken grade so as to provide maximum velocity at the channel throat.

The channel grade is approximately 28 feet below the sub-grade of the track, is 25 to 28 feet wide, and is designed to carry 15,000 second feet of water. Channel excavation required movement of large amount of rock, maximum excavation depth on hill slope being 89 feet.

During construction of the new railroad grade and river channel, the normally small flow of water was diverted through a wooden box beneath one bridge and a four-foot pipe culvert under the other bridge, the wooden culvert being used temporarily as an emergency outlet and later filled with rock.

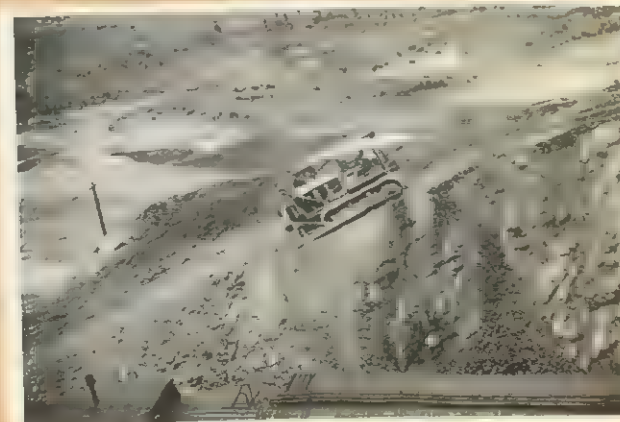
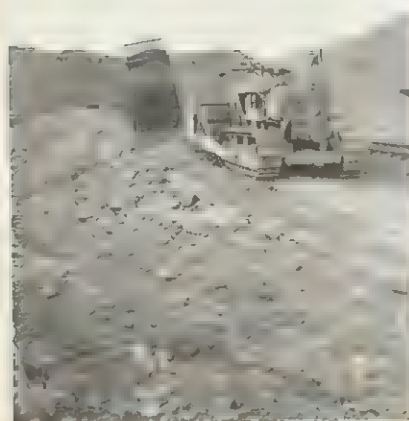
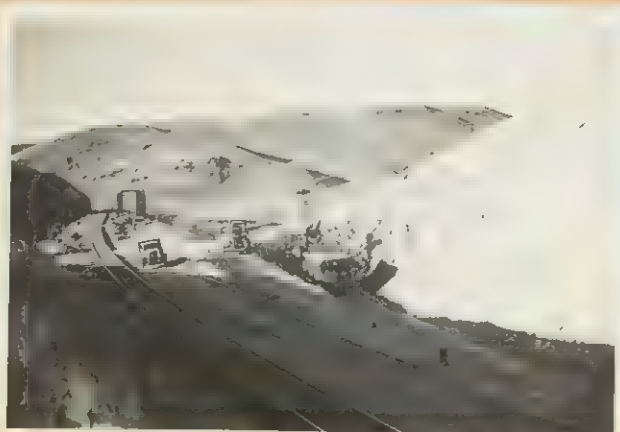
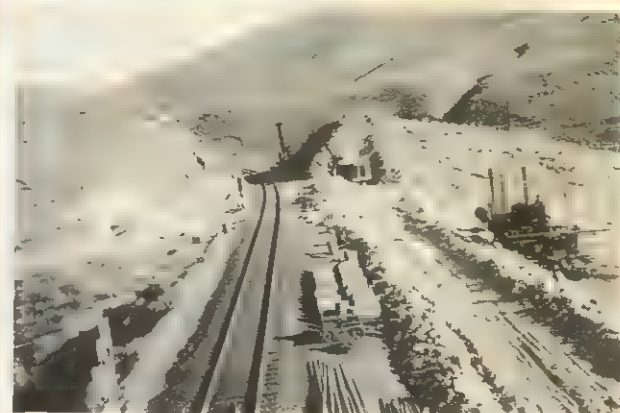
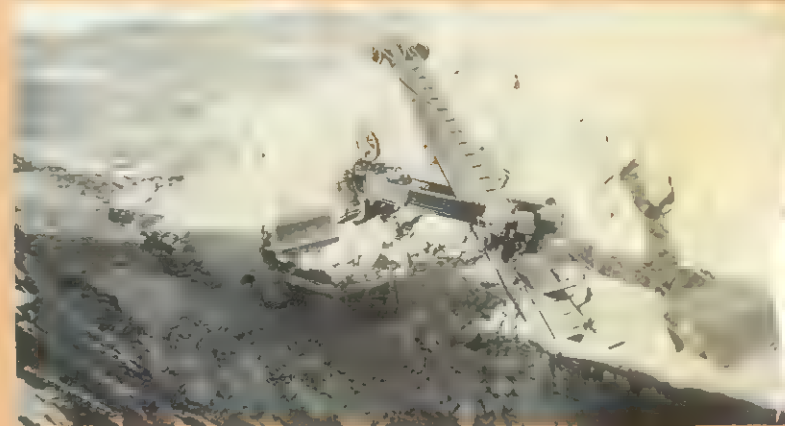
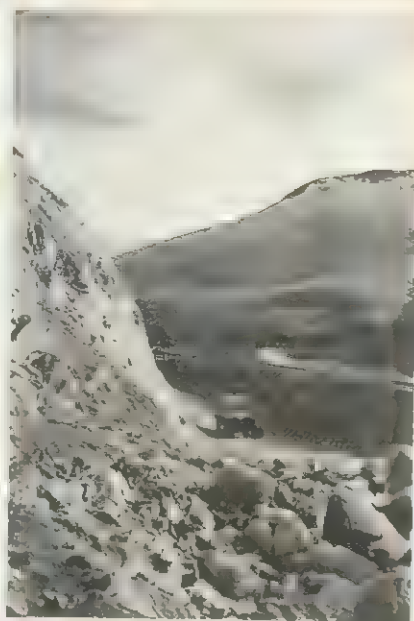
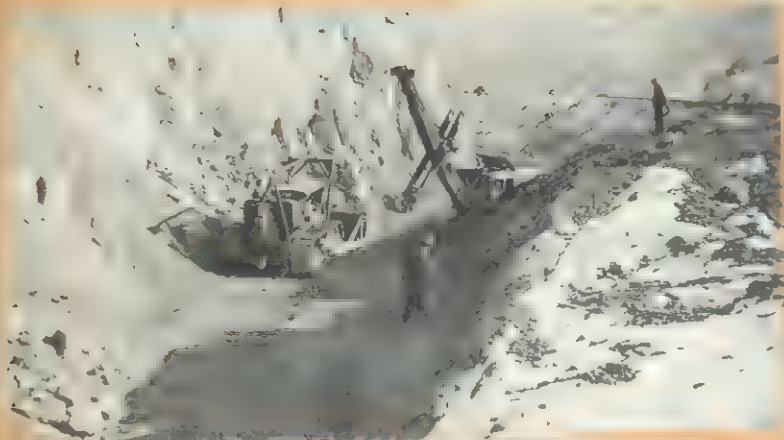
The 44 men employed on the job were housed and fed at a comfortable camp provided by Threlkeld Commissary Co. Aside from the sleeping quarters, the

camp included a large mess hall, kitchen, shower house with hot and cold water.

Following general plans outlined by Chief Engineer W. H. Kirkbride, the channel change was surveyed in August by a party under supervision of Glen Maw with Instrumentman E. P. Soderholm and B. R. Tomlinson and Max Daley as rodmen. Foreman D. W. Jenkins began erecting the camp on Sept. 9. At same time equipment was unloaded and powder houses erected under direction of Dan Higgins, with Maw assuming direct supervision of these activities as general foreman. The whole project began to move rapidly, with T. Caraway operating a $\frac{3}{4}$ -yard shovel, O. J. Bodie and G. Butler handling the bulldozer. On Sept. 16 P. O. Lakkin and J. O. Boardman began operating a two-yard shovel, and by Sept. 23 all equipment, including seven trucks, had been unloaded and serviced, and work was on double shift.

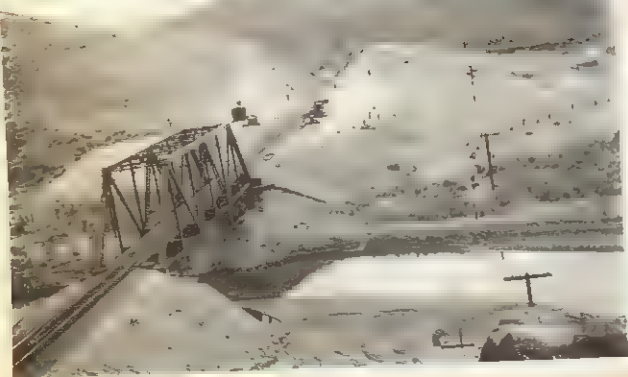
With Sup't L. P. Hopkins, Gen'l Track Inspector W. F. Monohan, Division Engineers Otis Weeks and F. A. Feikert on the job, the major-track shift was made on Oct. 29 and Nov. 1. All available equipment was used to make this throw in the shortest possible time. From start to finish it required only five hours detouring of trains against current of traffic. Final polish was put on the track alignment by an extra gang under Foreman J. Reedy, aided by section workers from Harney, Palisade, and Carlin, working under supervision of Roadmaster T. L. Williamson. Water was turned through the channel Dec. 4.

The project required 73 working days with approximately 3150 man-days. Its rapid completion is a tribute to the close cooperation of all departments concerned



HARNEY CHANNEL CHANGE 1940
 At time of derailment of Streamliner in 1939
 Bridge #5 was destroyed and replaced with temporary
 pile structure. In order to avoid replacing this
 structure Harney Line Change was made which eliminated
 bridges #4 and #5. This channel proved to be too
 narrow and had to be widened after high water of
 1942

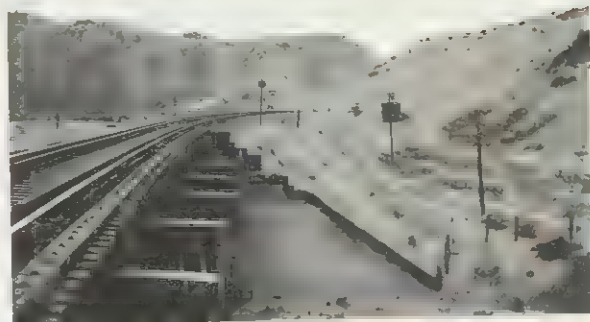
Bridge #4



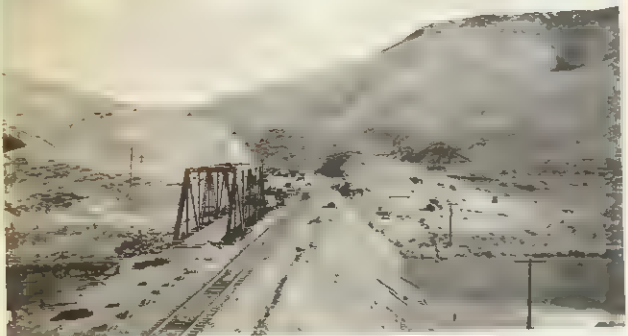
Bridge #4



Bridge #5



Bridge #4



Bridge #5



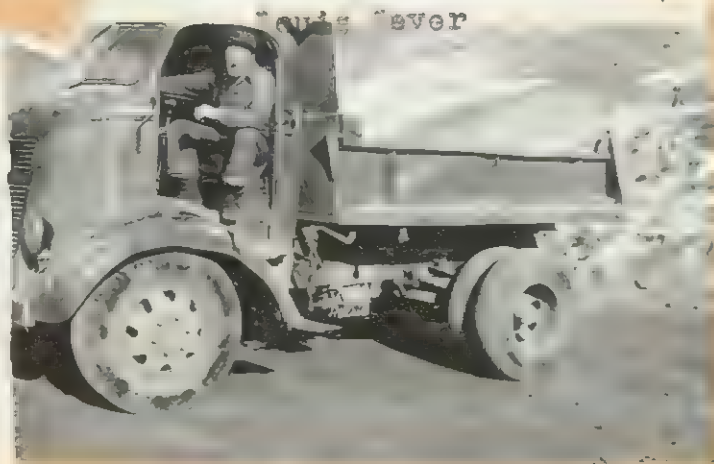
Louis Sever and other drivers



Pete Laken and crew



Louis Sever

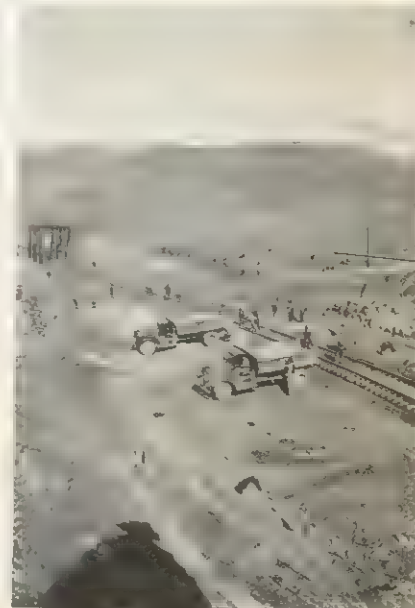


Shifting track with
shovel #36



Removal of 14th of Jan
in raised trestle bridge
of 1 mile temporary pile structure
was built to get traffic moving
but later it was decided to
make a slight change in alignment
which placed the trestle
river between the Western
Pacific and Southern Pacific
tracks and did away with the
necessity of bridges. The
4 pictures below show line
change being made for this purpose

Shifting Track with
trucks



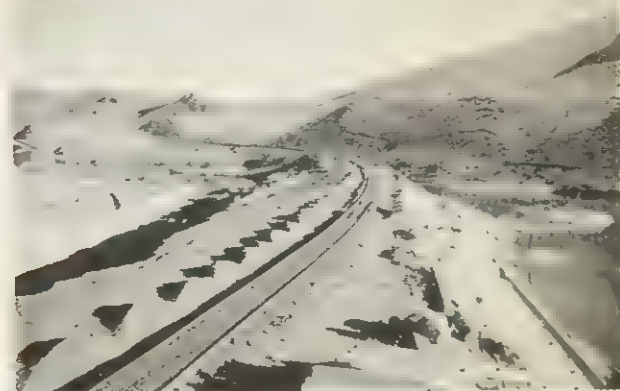
Dr Gang #34 moving track
to new alignment



Dave Jenkins with B & B Gang
removing bridge #5 after line
change



Track in new location with spread
of crushed rock to surface same



Mr Noble = Engineer
Eng. Roof run off Derailey



Clarence Alexander confessed to Sheriff Johnson at Susanville that he was the party that derailed Streamliner near Harney on August 12th 1939. This man was taken to Beowawe for preliminary hearing before Justice of the Peace and pled guilt to murder in the first degree but when taken to scene of derailment, to show how he enacted crime retracted his confession and later investigation showed this man in jail in Enid, Oklahoma on date of derailment

PAGE TWO

NEVADA STATE JOURNAL

Officers Free Suspect in Train Wreck

Army Desertion
Charges Face
Man in Nevada

EUREKA, Nev. (AP) — District Attorney W. R. Reynolds said Friday that Clarence J. Alexander, held here in connection with the derailment of the streamlined train, City of San Francisco, in 1939, would be released from custody, as he had proven to officers that he was in Enid, Okla., at the time of the wreck.

Reynolds said Alexander repudiated his confession after hearing the charge of murder read to him at the time of his preliminary examination. Officers investigated his repudiation and found he was in Enid at the time of the wreck.

The district attorney quoted Alexander as saying he "would not plead guilty to the murder of a woman."

A complaint had specifically charged Alexander with the murder of Miss Helen Henry, 30, Oakland, Cal., resident, who was one of 24 persons killed in the wreck near Harney, Nev., August 12, 1939.

Reynolds said "a strong desire to die was the reason Alexander gave for making the false confession of the crime."

Alexander was arrested at Susanville, Cal., on a minor charge November 20. Sheriff Olin Johnson of Lassen county, Cal., said at that time that Alexander "confessed" he wrecked the streamliner. The officer said the prisoner confessed because he could not sleep.

Reynolds said federal authorities would take Alexander into custody on army desertion charges.

TRAIN WRECK SUSPECT HELD AT SUSANVILLE

SUSANVILLE, Cal., Nov. 24. — (UP)—Sheriff Olin Johnson tonight said he was convinced the wreck of the streamline train "City of San Francisco" on Aug. 12, 1939, with the loss of 24 lives, had been solved by the confession of Clarence Alexander, 24-year old former section hand.

Johnson said that Alexander's account of how he wrecked the train in order to rob passengers in the confusion checked "to the smallest detail" with the physical evidence gathered.

"I am convinced," said the sheriff, "that his confession is true and that his motive—as he says—was solely one of robbery."

Visits Site

Alexander yesterday was taken to the scene of the train wreck near Harney, Nev., where his confession the sheriff said was "checked detail for detail."

Alexander was returned to the county jail here early today where Johnson said he was to be picked up by Eureka county, Nev., authorities for further investigation and possible filing of charges.

The sheriff's office here said it was believed Alexander would waive extradition formalities. He was being held under a routine charge of disturbing the peace.

Alexander had been arrested for investigation last week after he had been drinking and wrecked a motorcycle. During questioning by Johnson he blurted out the confession.

He was taken to the train wreck scene by Johnson and Dan O'Connell, chief special agent for the Southern Pacific railroad.

Johnson said investigators went over the scene thoroughly with Alexander and "tallied exactly" with the evidence every point in his confession.

"He led us directly to the scene of the wreck and demonstrated how he moved the rail a short distance which was sufficient to derail the streamliner," Johnson said. "Then he showed us how he spiked it into place and crossed the Humboldt river to hide until the streamliner came along."

Sabotage Charged

Johnson said that the terrifying scene as the train was wrecked frightened Alexander away and he left without trying to carry out his intent to rob the passengers.

"He fled through the hills for a distance of 12 or 15 miles until he came to a road," said Johnson. "At this point he got a ride in a truck into Elko and there took a train east."

Alexander was said to have signed the confession yesterday in Elko.

AS SHERIFF QUESTIONS YOUTH



Sheriff Olin S. Johnson of Lassen county, Calif., is shown above questioning Clarence Alexander in connection with the youth's "confession" that he wrecked the "City of San Francisco" near Harney Nev., in August, 1939. (Photo Special to Journal)



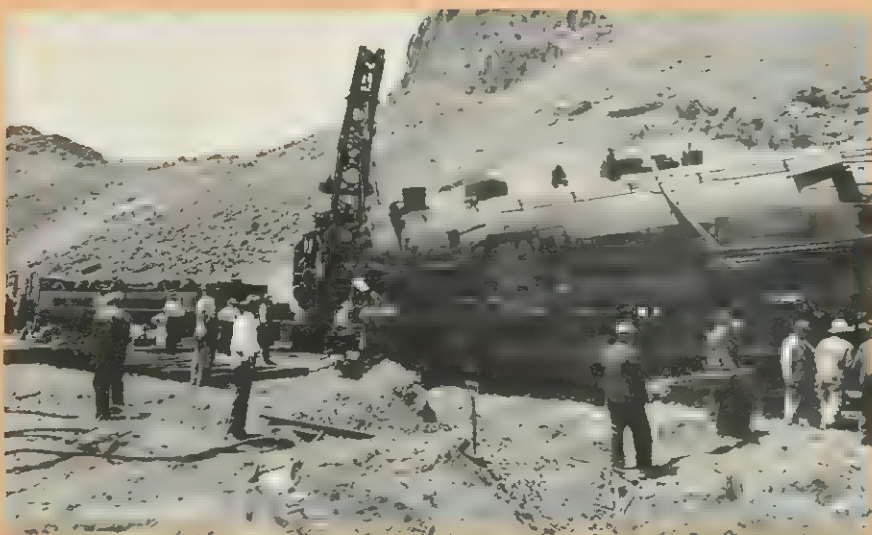
SHERIFF OLIN S. JOHNSON

SHERIFF STANLEY FINE

Investigating the "confession" of Clarence Alexander that he "wrecked" the streamliner "City of San Francisco," are Sheriff Olin S. Johnson of Lassen county, Calif., and Sheriff Stanley Fine of Lander county, Nev.



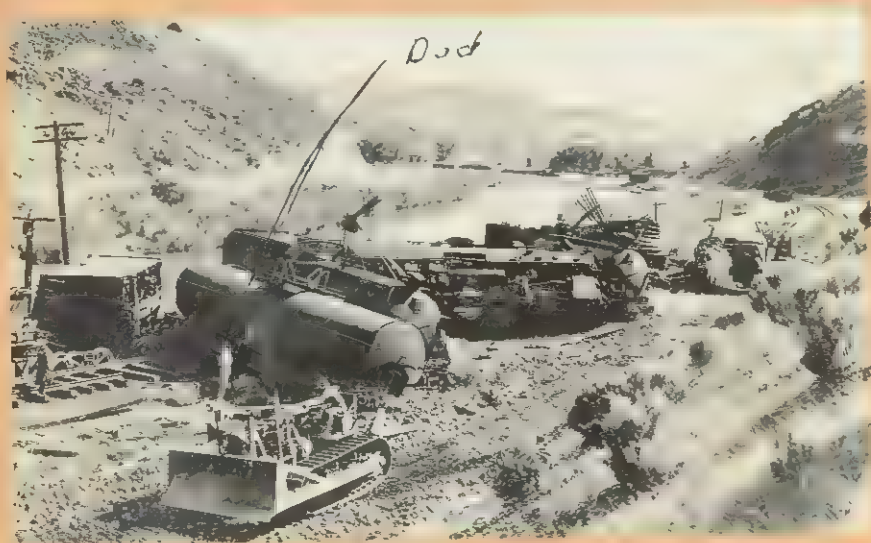
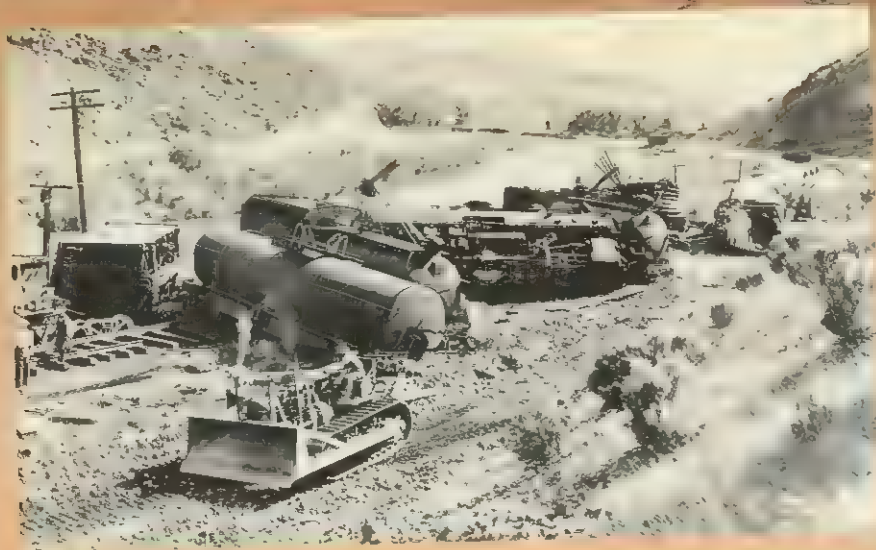
Faliscade June 1943 Rear End Collision
P.F.E. in rear loaded with eggs but
only 11dozen broken



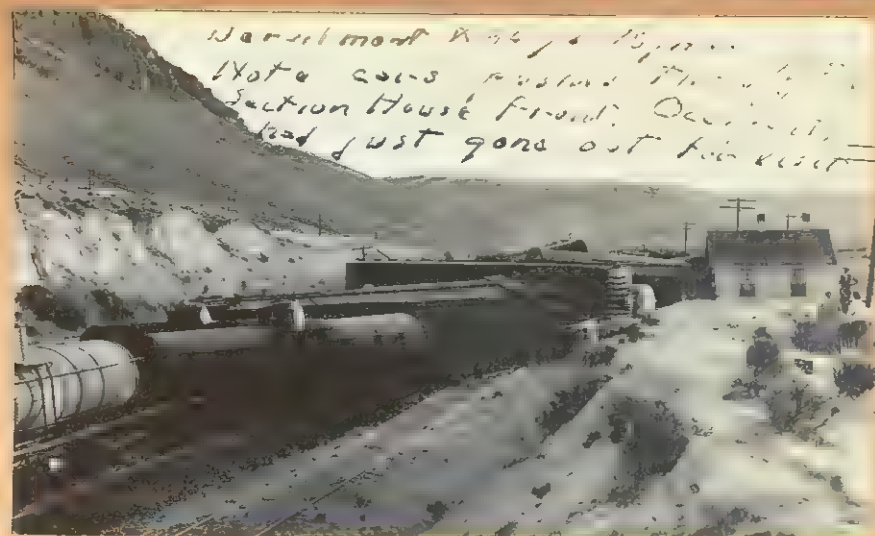
Derailement at Faliscade June 30th, 1943 account

Rear End Collision account Double Header with
Engine 4321-Engineer Louis Grose
" 3672 " Smith
running into rear end of local
at east switch at Faliscade.





Dereilment Extra 8691 at
Ryndon 7/5-43
Western Pacific truck in
foreground.



Dereilment X 3691 Ryndon 7/5-43
Note outfit car pushed through
front of Section House



Bill Kinner
J.E. Stone

Supt L.P. Hopkins



Dereilment X 8691 at
Ryndon 7/5-43
Western Pacific truck
foreground



Dereilment 2nd G.S. at
Ryndon 7/5-43



Dereilment X 8691 Ryndon 7/5-43



Dereilment Extra 3691 at Ryndon July 6th 1943
account rear end collision with Local Freight

Western Pacific No. 204 - Feb 1937



Boiler explosion on engine 204 near Idaho Falls

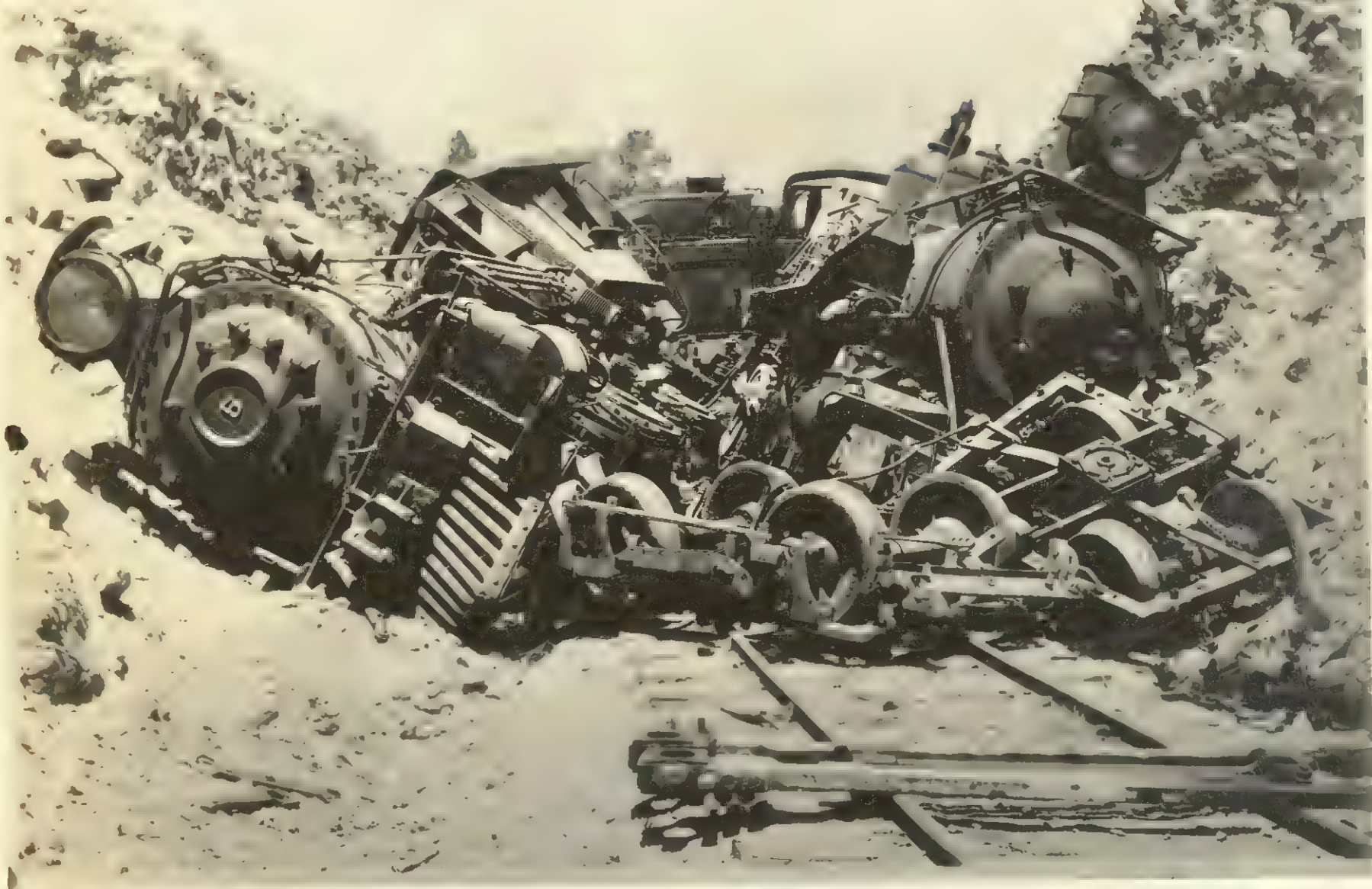
Derailed Engine 22 Aberdeen California Feb 1937
Condor Mulich Engineer Smith



Derailed on track - Aberdeen, Cal.
about 1937. Condor Mulich Engineer Smith



Mt Montgomery 1923
 Engineers Ford, Wagner and Brannon
 Firemen Whittier and Linders
 Linders died from injuries



Wreckage of engine 44 and tender on side east of
 Mt Montgomery due to excessive speed on July 10, 1923.
 Engineers Ford, Wagner and Brannon
 Firemen Whittier and Linders
 Linders died from injuries sustained in wreck.
 Rest of crew escaped.

Car loaded with Gas Shovel but two
journals burnt off just east of
Winnemucca. April 1943



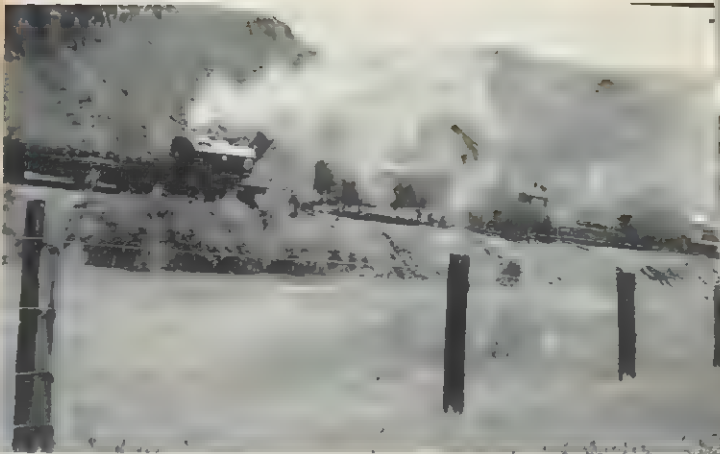
Car with Burnt-off journals on West. Pacific
east end of Winnemucca April 1943



Car loaded with Gasoline Shovel burned off
TWO journals between Weso and Winnemucca
in April 1943 on Western Pacific. Only case
I ever heard of with two burnt-off journals

San Antonio California April 1947





Grant Point - 1937





HISTORIC AND TRAGIC train wreck of April 4, 1889, at Lawton's resulted in extensive damage to these locomotives and death to two crew members. Improvement in railroad equipment has reduced the margin of error that resulted in such mishaps. Involved in this

one were Engine Nos. 78 and 371. Contributing to this mishap was a broken coupling which delayed the eastbound train long enough to prevent sidetracking at the appointed spot. This photograph is from the Dr. Palmer collection.

At 8:05 a.m. engineer Perkins pulled No. 9, a heavy freight, out of the Wadsworth yards. He was westbound on the single track for Truckee. Perkins was satisfied with the sound of his engine for he'd had the best valve setter in the twenty-stall Wadsworth roundhouse set the valves. Fireman Mysegader, a younger man, had a good head of steam built up for the long pull ahead.

Slowly, Perkins manipulated the throttle as the train wound through deep cuts beside the Truckee and into Reno. Here he picked up young Harry Wilson, his forward brakeman. He compared watches with the station agent and his own conductor, Patton, before pulling out at 10:25 on the dot—and on schedule. He expected to meet the east bound #10 sidetracked either at Laughton (now shortened to Lawton) siding or Verdi. Westbound trains had the right-of-way on the single track.

At approximately the same time, train #10 with Engineer Thatcher at the controls rolled through Verdi. Conductor Clark tossed the station agent the bills for two freight cars he'd set out on the Verdi sidetracks and ran toward the moving train. He missed the engine and caught the first car, then walked forward to the engine cab.

RUNNING LATE

Thatcher was intent upon the steam gauge and throttle. He was four minutes late leaving Verdi and he called for more steam as the great engine gathered speed. A good engineer, with a clean record, he felt he knew his engine. The speed limit was thirteen miles an hour around curves and fifteen on the straightaway. He pushed the throttle open a little more and increased his speed.

On top of 25 Mile Hill the train broke in two (the coupling broke between two freight cars). Thatcher pulled back on the Johnson bar and shut off the throttle to halt the train. Rear brakeman Ike Cross ran forward from his place in the cupola of the caboose with pin and link in his crippled hands. Like many brakemen, he'd lost the first two fingers of both hands in using the dangerous link and pin couplings that frequently amputated fingers and crushed men. This time he was lucky and had the train recoupled within minutes.

LOSES TIME

But Thatcher had lost valuable time and opening his throttle wide, he brought the train downhill at twenty-two miles an hour in spite of the fact that he had no orders to do so.

Again he checked his watch with conductor Clark. He'd used up all the time allowed for variation of watches (five minutes). "Let's go on, we can make it," urged Clark.

Thatcher didn't reply. He knew he was running on #9's time but confident that he could get to the whistling post where he could be heard and seen. The whistling post was half a mile from Laughton's siding.

As they sped around the curve above George Laughton's ranch house, Clark began to lose confidence.

"If you can't make it, we'll cut off," he offered.

"There's no need of it," Thatcher replied.

He slowed his train down to eight miles an hour and pulled the rope for two long whistles

and one short. He was sure now that he could be safely sidetracked by the time #9 came along. But it was too late.

"Get off, Jack!" Clark shouted.

"I'll not get off, I'll stop her," replied Thatcher.

Plugging her, Thatcher put her in back-up motion and pulled her wide open on sand.

At the same time on train #9, Perkins saw the opposing train loom up in front of him.

"For God's sake, get off. They're going to strike!" he shouted to his brakeman and fireman.

ABANDONS POST

Simultaneously, he called for brakes, blew his whistle, put on air and shut off his throttle. Then he ducked out the gangway and stumbled up the hill.

falling over rocks. The two powerful engines came together with a grinding crash, splintering freight cars up and down the line. Perkins lay stunned as the rumbling subsided.

For perhaps two or three minutes, steam puffed and spewed. But as it began to clear, Perkins pulled himself to his feet and staggered back to the engine of #10 where he found Jack Thatcher, badly bleeding about the head, but still at the controls of his engine.

"What time you got?" he

demanding.

Dazed, Thatcher pulled his watch out.

"Jack your watch is a minute slow. But that won't save you. What in the name of heaven are you doing here?"

"My God, I thought I could make it."

Tragic words. Irreparable damage.

Perkins called for someone to come and bathe Thatcher's wounds as he lowered himself from the cab. He guessed no one was hurt. Then his eye lit on the broken body sprawled on the cylinder.

"My boy is killed . . . my boy . . . oh, no!"

GRIEF STRICKEN

He stood wringing his hands helplessly, speechless now with shock at the sight of Mysegader, his fireman. His eyes refused to credit the additional scene of conductor Clark's vain attempts to remove another man from the smokestack. Continuing steam drove the dauntless man back time after time. It was another of Perkins men, Young Wilson, the brakeman. He, too was dead.

"His boys" and "his engine." The two most valuable things in the career of an engineer wiped out in a few seconds time. To kill the one and break the other was to kill and break a little of himself. But Perkins was still the more fortunate. For Thatcher and Clark, lifelong careers lay splintered in the wreckage, victims of human error.



Asst Supt L. J. Fisher
in gangway wearin straw hat



Engines 5 & 8 returning to Mine
Cordi J. E. Frey
R. H. Foreman H. J. Proctor



Derailed Engines 5 & 8
New MT Montgomery 7/3-23
Asst Supt - H. W. Westner
M. M. J. E. Stone
Tramway T. L. Williams



Engines 5 and 8 running light to Laws when
Engine 5 overturned account excessive speed
on 20 degree curve. Engine 8 came alongside
engine 5 and both engines were laying on sides
locked together in rock cut. Only wrecking
crane consisted of an old hand operated crane
which was useless on heavy lift making it
necessary snake one engine back on its side
and then set them right side up by using dead
man an pulling with engine. Bill Hack, Supt on
Salt Lake Division at that time operated engine
pulling on derailed engines.



Derailment Benin curve near Winnemucca 1927 caused by spread track account section foreman F Sheridan installing 21 new ties in rail length without flag protection



1927

Section Foreman Frank Sheridan renewing ties on Benin curve put in 21 new creosoted ties in rail length without flag protection. When signal showed train approaching he got two ties spiked but rails spread under train derailing eighteen cars



Cosgrave Nevada 1950 21cars in two pole lengths





Engines 4106 & 4122
Alturas Yard

About 1949
Engine 4106 standing on lead in front
of yard office at Alturas when it was
side swipped by engine 4122

Photograph 3rd 562 at Granite Point, Nevada August 1936



Granite Point Aug 1936 Nevada



Boiler Explosion on Rice Hill Portland Division
7/1-12



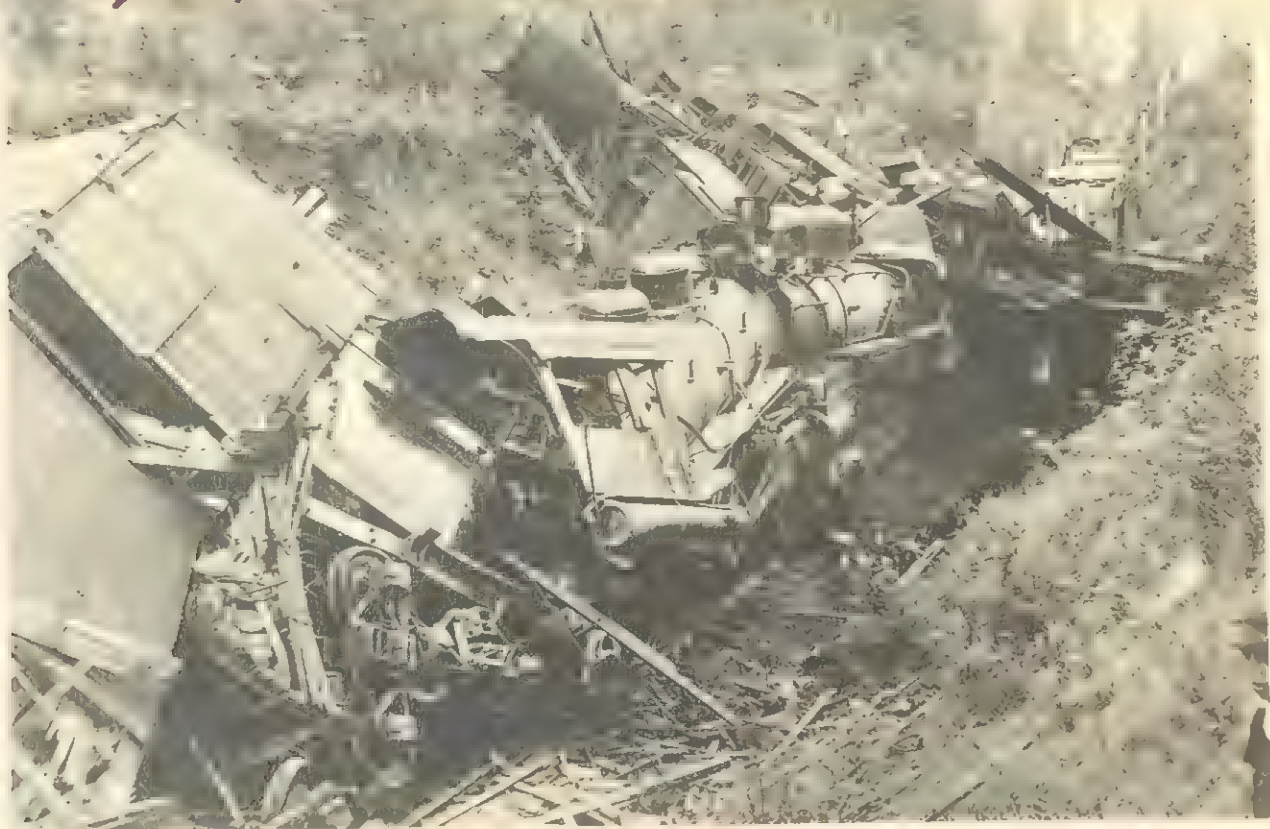
Boiler Explosion Rice Hill Portland Division
7/1-1912







Head-on Collision Trains 223 & 234 at Goodwin 3 Miles west of
Oswego 5/21-18



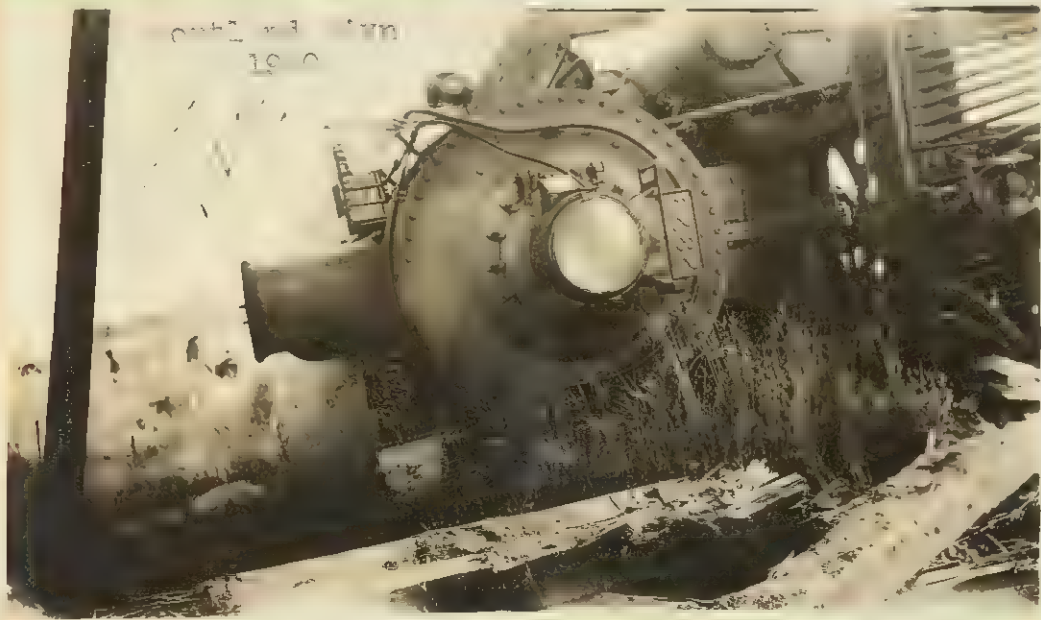
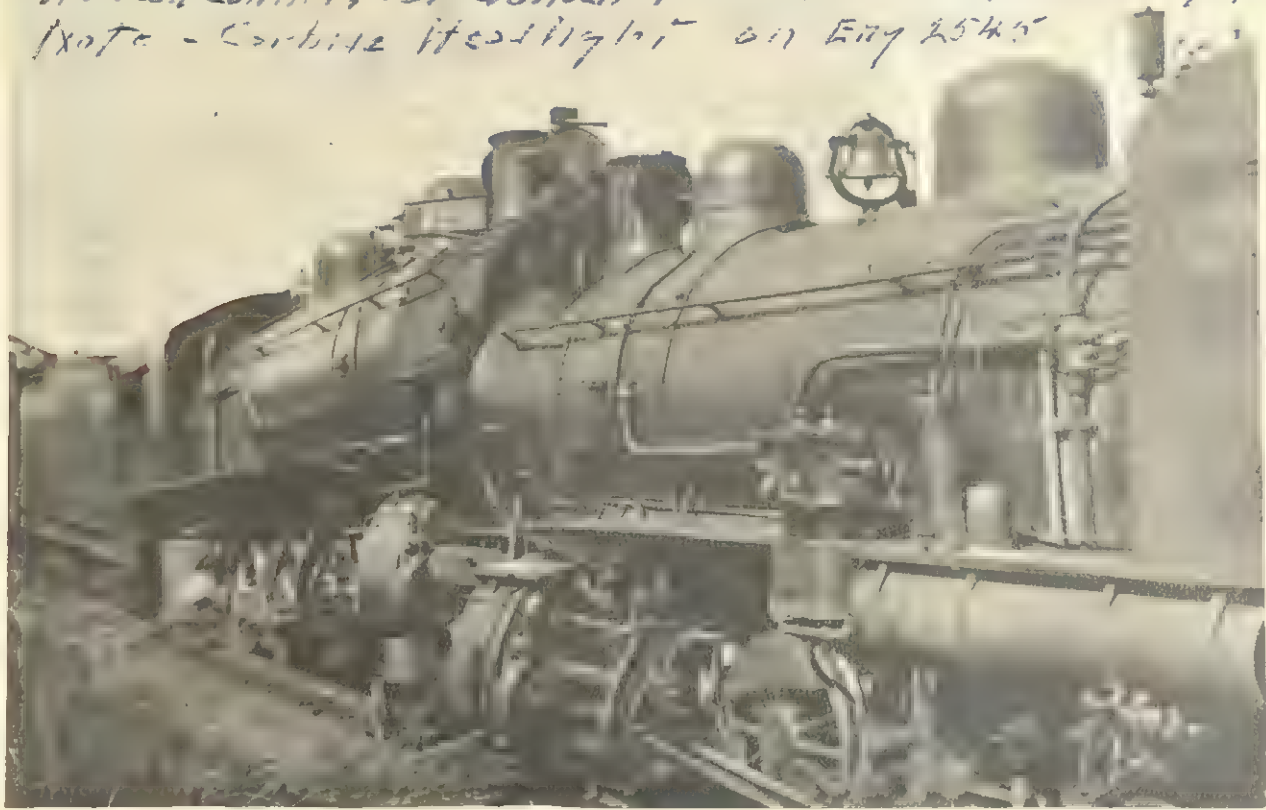
Head-on Collision at Barths Oregon
Portland Division 8/9-20 Trains 107-110
Engr W.S. Willetts on #110 killed
Peabler - - - Deadheading
Several Passengers also -



Head-on Collision at Barths Oregon
Portland Division 8/9-20 Trains 107 & 110
Engr W.S. Willetts on #110 killed also
several passengers



~~Collins at 13th St. - Oregon - Texas 107 & 110 3/9-20~~
~~Eng. W. H. Williams on 110 Miles also served passenger~~
~~Hudson Collins at Goshen Portland Division about 1901~~
 Note - Corbin Headlight on Eng 2545



Described in 1900
History of the
House of Commons



August 1900

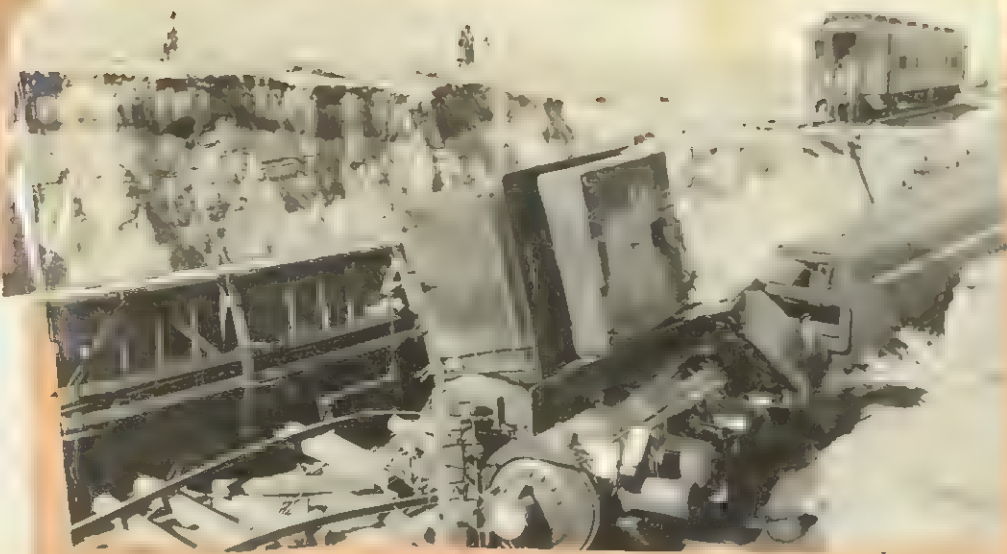


Eng. n.
Head n. between and returning
helper. near Loyalton. Engineer Boyd. Probably about 1880



West of Reno about 1905

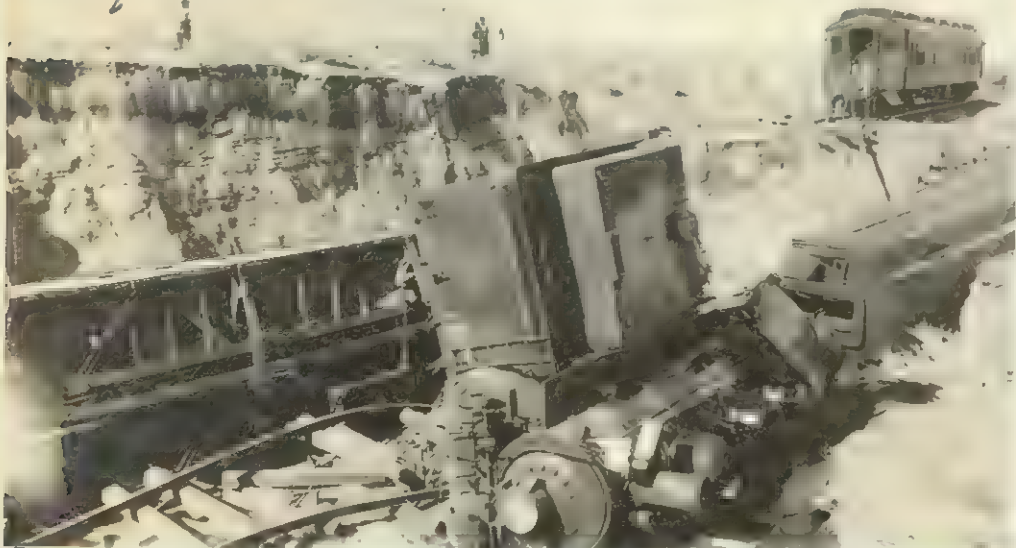




Washout near Cartago - California
caused by break in City of Los Angeles
Aqueduct



Washout Cartago - California near
Owens - Engineer Fuller killed



Pullman on rear of train standing on original track

11/26-26

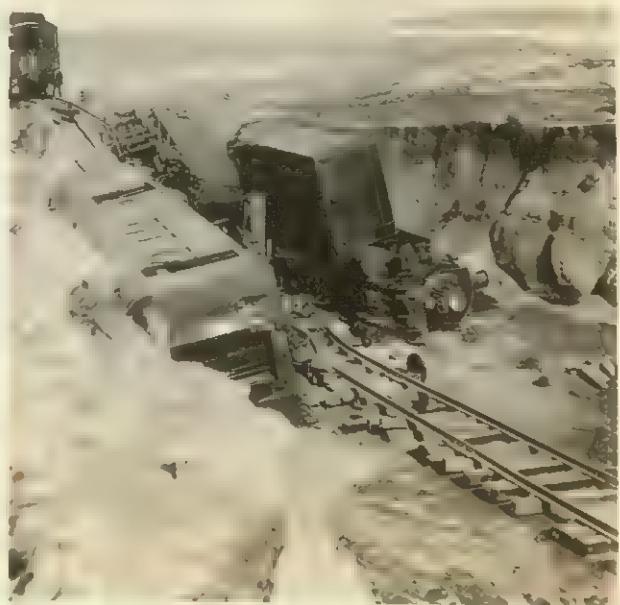
Break in City of Los Angeles aqueduct near
Cartago on Jaw-Bone line washed out track to
depth of 12 or 14 feet. Passenger train #89
out of Owens with engineer Fuller and Conductor
Bill Lovejoy ran into washout derailing all cars
except Pullman on rear end and killing engineer



Derailment train #89 near Cartago 11/26-26
Engr Chas Fuller killed
Condr Bill Lovejoy



Washout near
Cartago - on it on
Jawbone line to
Owens and to
break in City of
Los Angeles Aqueduct
Engineer Fuller, killed



City of San Francisco Lakeside January 49



City of San Francisco Lakeside 1949

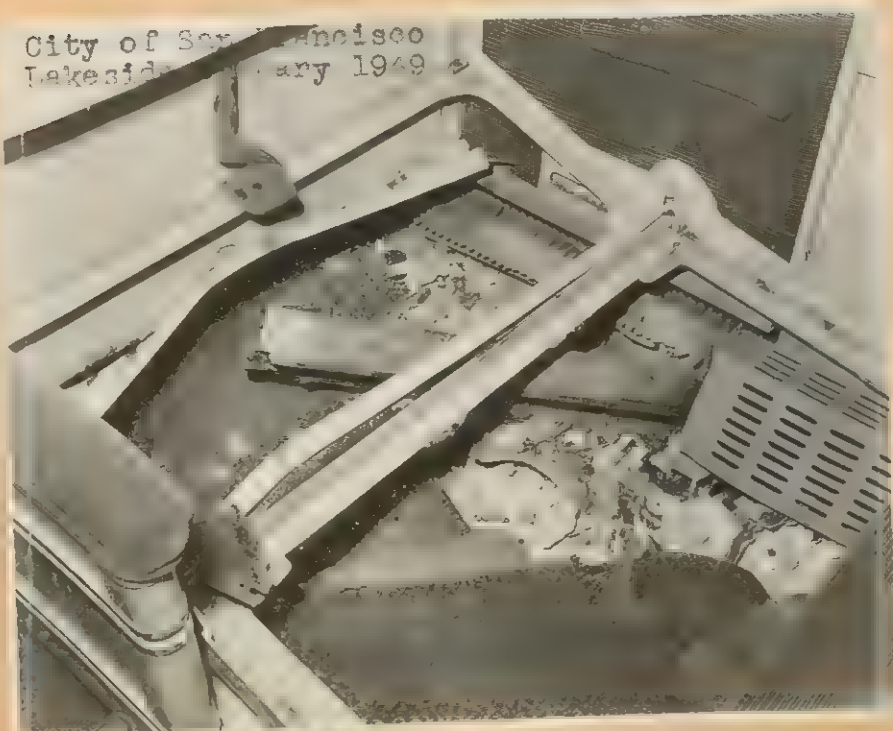


Derailement of City of San Francisco
at Lakeside, Utah in January 1949
account broken rail

City of San Francisco Lakeside January 49
Note broken rail protruding from car



City of San Francisco
Lakeside January 1949





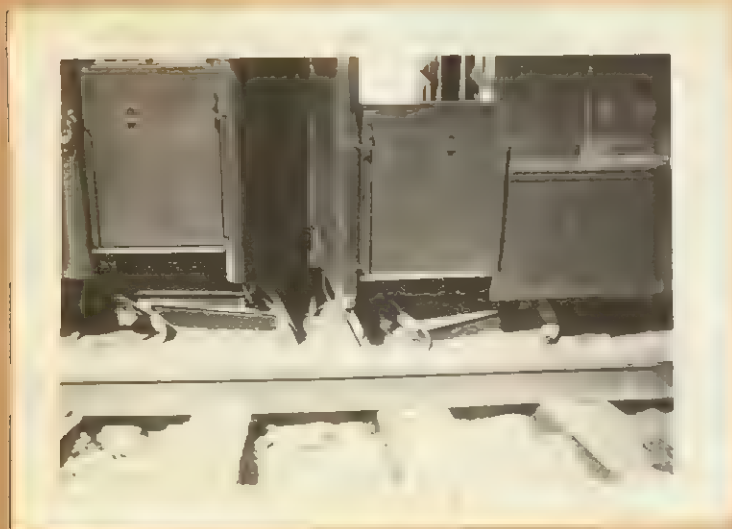
Derailment near Susanville
November 1937



Derailment Nov 1937

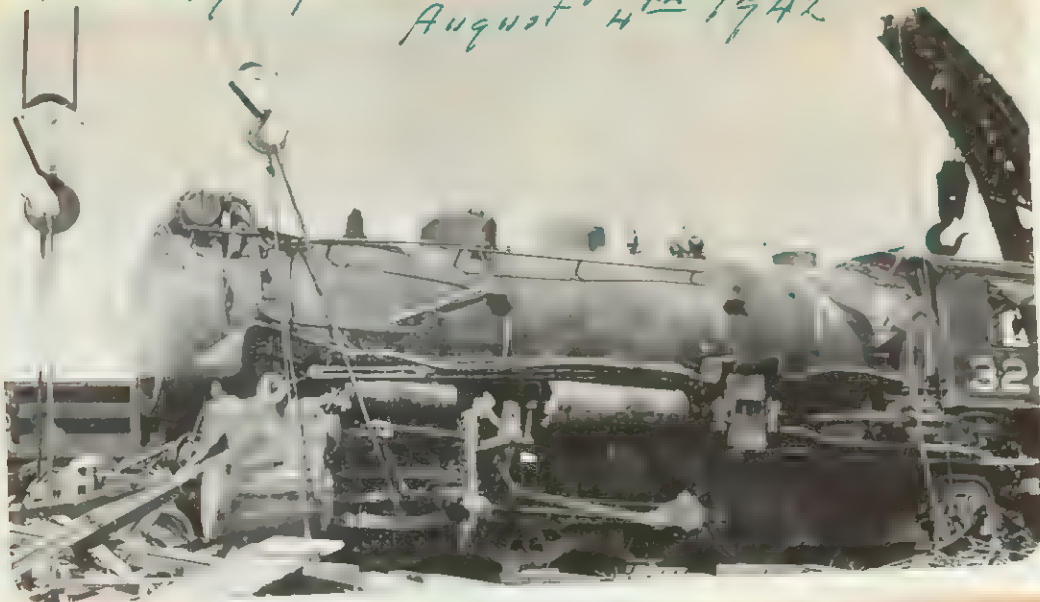
V. J. Foley

Derailment near Susanville Nov 1937
Account Train striking rock slide



Derailment Train #1 Upsal, Nevada Jan 24th 1929
 Caused by loose tire on engine which dropped inside
 rail and spread rail derailing all cars. Train
 making 55 M.P.H. at time of derailment but no
 injuries and many passengers did not waken until
 morning

Picking up W. P. Engine near Vivian
August 4th 1942



Picking up W. P. Engine 324
Near Vivian
August 1942



Picking up W. P. Engine 324



Wreck Blocks S. P. Tracks

Freights Collide East of Carlin

ELKO, Aug. 3. (Special)—Traffic over the Southern Pacific tracks between Elko and Carlin was resumed at ten o'clock this morning after crews had cleared the right-of-way near Carlin that was blocked by a wreck occurring at 4:50 o'clock Sunday afternoon.

The rear-end collision took place when a westbound Western Pacific freight engine, with H. H. Thorne as engineer, crashed into the caboose of a one-hundred car Southern Pacific freight train. The wreck occurred near Vivian, just east of Carlin, and the engine of the Southern Pacific train was standing in the Carlin yards.

The engineer of the W. P. engine said he was blinded by the sun and failed to see the train ahead. He said he was traveling at twelve miles an hour. The caboose was demolished and the W. P. engine turned on its side. The car ahead of the caboose was telescoped into the car ahead and this car was in turn derailed.

The only injury occurred to Sam Seals, Western Pacific brakeman, who received a broken wrist. He was riding in the cab of the freight engine with R. Judd, fireman. The men in the S. P. caboose saw the engine bearing down on them and ran to safety. Railroad officials are conducting an investigation of the mishap.

Deroilment W. P. Engine 324
Near Vivian Aug 12th 1942



Deroilment W. P. Engine 324
Near Vivian Aug 12th 1942



J. E. Stone at Vivian Aug 4th 1942

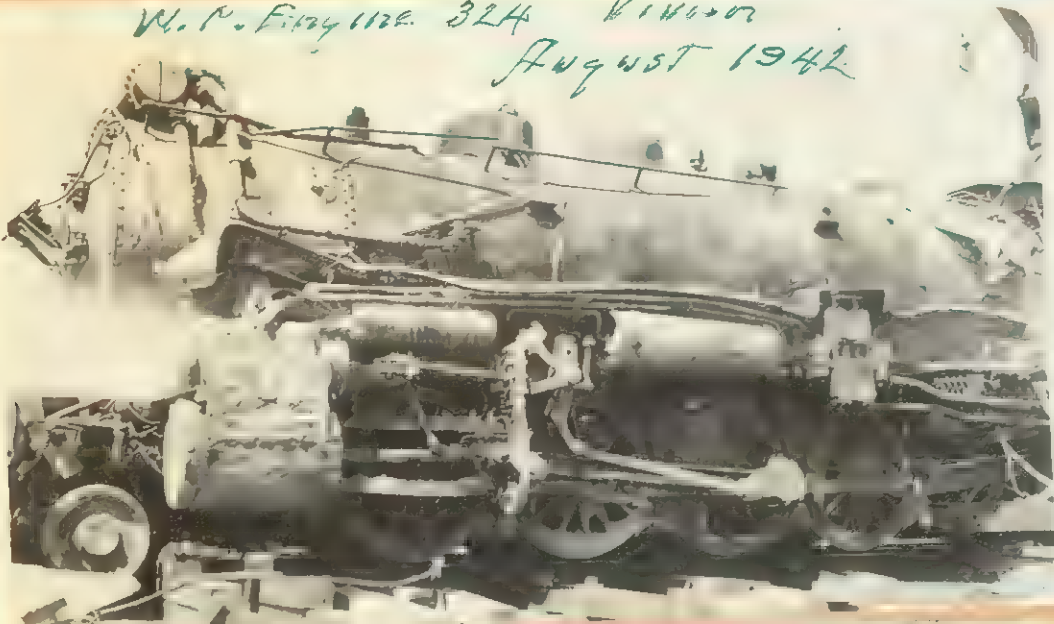


Revolving W.P. Engine Vivian Aug 1942

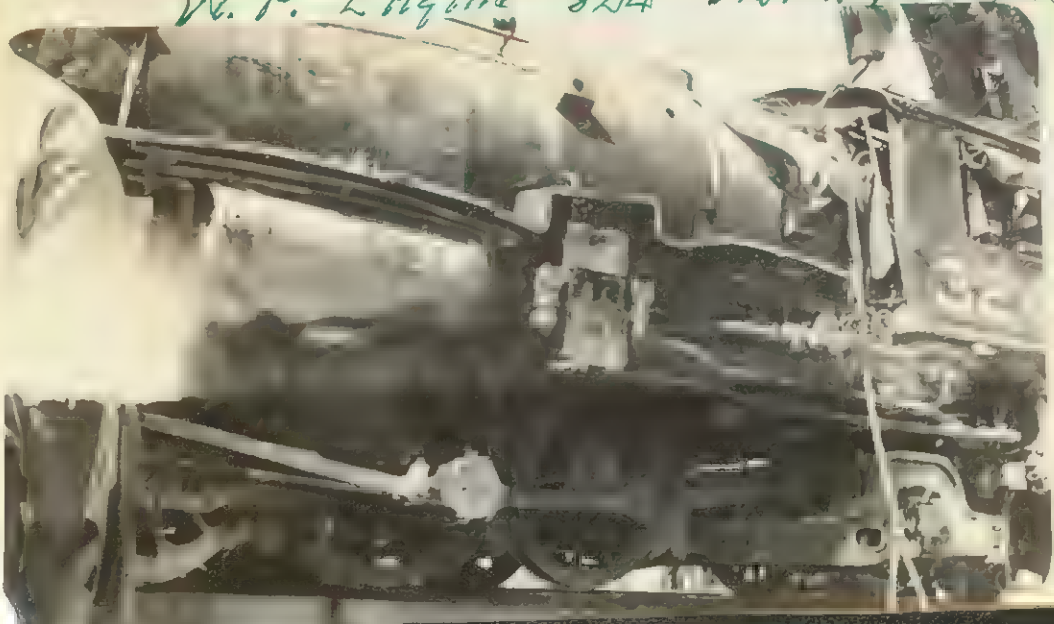


T. L. Williamson Jr.

W.P. Engine 324 Vivian August 1942



W. P. Engine 324 Vivian Aug 1942



Derailement
W.P. Engine 324
at Vivian - Nevada
August 1942

Ed Carroll



Derailement Engine W.P. 324
Near Vivian Aug 12th 1942



Western Pacific Engine 324 derailed
account colliding with rear end of
Southern Pacific train which had
stopped at east end Carlin Yard to
head in. Engine 324 overturned but
no serious injuries to anybody

This probably about the closest call that I
ever had. Carlin is a good place. While
I was stopped over watching some flat car
was properly placed on rail. One broke and
engine 324 was derailed. I was by hand.

Jan 25th 1942

Out of the Past



Here's a pictorial flashback which graphically illustrates the march of transportation. Taken on the Southern Pacific in the early days of the West, the picture shows the "Iron Horse" and horse-drawn stage coaches side by side at a frontier depot. The little locomotive and wooden cars, the height of railroading in that day, finally put the stage coaches out of business and themselves became a thing of the past as transportation progressed.

10

Lincoln Highway west of Winnemucca



1917—Before Highways Were Built, Roads Were Rough



Local Freight Grant Pass to Roseburg 1899
Local Freights carried passengers in those days and Miss Wertz was lady passenger.
Ekman Ed Morian near caboose 52

Celebration was held at location of "Monument to Driving of Last Spike" Southern Pacific track here was abandoned this location was made at the Park and dedicated by Governor of Utah. Present for the Southern Pacific was Capt. Anderson 1955





Engineering Party (names unknown)
During construction of C.P.
Probably about 1870

Rayner's

DRAMATIC COMPANY

...WILL PRESENT...

DAMON AND PYTHIAS

...AT THE...

OPERA HOUSE

On Tuesday, Dec. 12th, 1893.

This is a good Company and should be
well Patronized.

...in old hotel at Golconda



The Exposition Line
Southern Pacific Service is the Standard



Buffet Car Service

WINE LIST

CHAMPAGNE		MISCELLANEOUS	
	1/2 Bottles		1/2 Bottles
G.H. Mumm & Co. (Extra Dry)	2.75	White Rock Water	25
Krug (Private Cuvee)	2.75	" " " Splits	15
Paul Masson (California)	1.00	Apollinaris Water	25
IMPORTED WINES		" " " Splits	15
Pontet Canet	1.25	Shasta Water	15
CALIFORNIA WINES		" " " Splits	10
Claret (Inglenook)	40	Shasta Water for High Balls (4 oz.)	.05
Sauterne (Schramsberger)	50	Shasta Ginger Ale for High Balls (4 oz.)	.05
Riesling (Giersberger Priv. Stk.)	40	Vichy (Celestins)	25
MISCELLANEOUS		Poland Water (Still)	20
Beer, Domestic	25	Bartlett Water (Natural)	20
Beer, Eastern	25	Lemonade	15
Guinness' Dublin Stout	30	" (Mineral Water)	25
Bass' Ale (White Label)	35	Iaqua Medicinal Spring Water	
Belfast Ginger Ale	25	Splits	15
Sarsaparilla (Imported)	25	Red Raven Water	Splits 15
Cider (Non-Alcoholic)	25	Sparkling Apenta Water	" 15
Grape Juice, Red	Splits 15	Brandy	Flask 25
" " White	" 15	Whiskey, Rye	" 25
" " Eastern	" 15	" Bourbon	" 25
Pineapple Juice (Individual)	15	" Scotch	" 25
Club Soda (Schweppes)	25	Cocktails	" 20
CIGARS AND CIGARETTES		Gin	" 20
Clear Havana	Three for .50	Sherry	" 20
Clear Havana	Two for .25	Vermouth	" 20
Imported	.25	Benedictine	" 20
Cigarettes (package)		Creme de Menthe	" 25
Cigarettes (box)		Bromo Seltzer	Individual 10

CIGARS AND CIGARETTES		CIGARS AND CIGARETTES	
Clear Havana	Three for .50	Clear Havana	10
Clear Havana	Two for .25	Domestic	10
Imported	.25		
Cigarettes (package)			
Cigarettes (box)			

Playing Cards .50

No Wines or Liquors sold between Dunsmuir and Weed, or between California-Oregon State Line and Barlow Ore. or Washington, Arizona, Texas, Louisiana or Nebraska, or in Fresno Stanislaus Riverside and Imperial Counties Calif. or on Sunday in New Mexico, Oregon, or Los Angeles County Calif.



No Cigars or Cigarettes sold in Louisiana on Sunday No Cigarettes sold in Nevada or Nebraska

No Cigars, Cigarettes or Tobacco sold to Minors in California
No Cigarettes sold to Minors in Washington.





INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2856
THE SOUTHERN PACIFIC COMPANY
REPORT IN RE ACCIDENT
NEAR LAGLEY, UTAH, ON
DECEMBER 31, 1944

SUMMARY

Railroad:	Southern Pacific	
Date:	December 31, 1944	
Location:	Fogley, Utah	
Kind of accident:	Rear-end collision	
Trains involved:	Passenger	: Mail-express- baggage
Train numbers:	First 21 .	: Second 21
Engine numbers:	4425	: 4361
Consist:	18 cars	: 20 cars
Estimated speed:	3 m. p. h.	: 50 m. p. h.
Operation:	Timetable, train orders and automatic block-signal system	
Track:	Double; tangent; level	
Weather:	FOGgy	
Time:	5:14 a. m.	
Casualties:	50 killed; 81 injured	
Cause:	Failure properly to control speed of following train in accordance with signal indications	

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2856

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

THE SOUTHERN PACIFIC COMPANY

March 7, 1945.

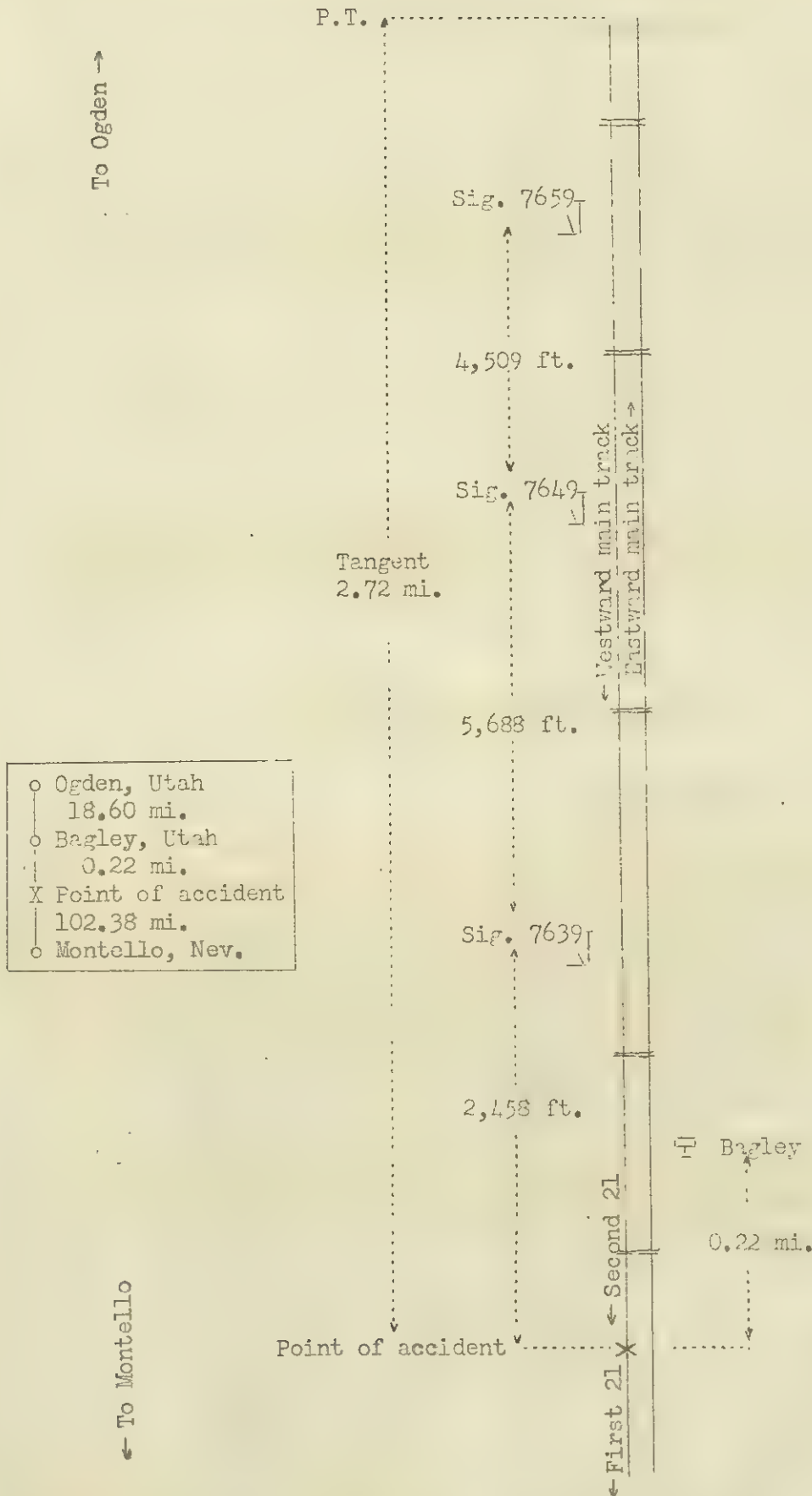
Accident near Bagley, Utah, on December 31, 1944, caused
by failure properly to control the speed of the
following train in accordance with signal indications.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On December 31, 1944, there was a rear-end collision between a passenger train and a mail-express-baggage train on the line of the Southern Pacific Company near Bagley, Utah, which resulted in the death of 41 passengers, 1 Pullman employee, 4 dining-car employees, 2 employees off duty and 2 train-service employees on duty, and the injury of 63 passengers, 1 Pullman employee, 7 dining-car employees, 1 train-service agent, 1 employee off duty and 5 train-service employees on duty. This accident was investigated in conjunction with a representative of the Public Service Commission of Utah.

¹Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Inv. No. 2856
Southern Pacific Company
Bagley, Utah
December 31, 1944

Location of Accident and Method of Operation

This accident occurred on that part of the Salt Lake Division designated as the Ogden Subdivision and extending westward from Ogden, Utah, to Montello, Nev., 121.2 miles. In the vicinity of the point of accident this was a double-track line over which trains moving with the current of traffic were operated by timetable, train orders and an automatic block-signal system. The accident occurred on the westward main track 18.82 miles west of Ogden, at a point 0.22 mile west of the station at Bagley. The main tracks were tangent throughout a distance of 2.72 miles east of the point of accident and a considerable distance westward. The grade was practically level.

Automatic signals 7659, 7649, and 7639, governing west-bound movements on the westward main track, were located, respectively, 12,655, 8,146, and 2,458 feet east of the point of accident. These signals were of the one-arm, two-position, lower-quadrant, semaphore type, and were approach lighted. The involved aspects and corresponding indications of these signals were as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>
7659	Green, 60 degrees	Proceed
7649	Red, horizontal	Stop
7639	Red, horizontal	Stop

The controlling track circuits were so arranged that when a west-bound train occupied the westward main track in the block immediately west of signal 7639, signals 7639 and 7649 would display stop and signal 7659 would display proceed.

Operating rules read in part as follows:

DEFINITIONS

* * *

With Caution--To run at reduced speed, according to conditions, prepared to stop short of a train, engine, car, misplaced switch, derail, or other obstruction, or before reaching a stop signal. * * *

11. When an unattended fusee is burning on or near, a track within block system * * * limits, train may proceed without stopping, but must run with caution, not exceeding fifteen miles per hour, for three-fourths mile.

* * *

34. All members of train and engine crews must, when practicable, communicate to each other by its name, the indication of each signal affecting the movement of their train.

35. The following signals must be used by flagman:

* * *

Night signals--A red light,
a white light,
torpedoes and
fuses.

99. * * *

When a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately with flagman's signals a sufficient distance to insure protection.

* * *

When a train is moving under circumstances in which it may be overtaken by another train, the flagman must take such action as may be necessary to insure protection. By night, or by day when the view is obscured, lighted fuses must be thrown off at proper intervals.

* * *

509 (F). When an automatic block signal indicates "stop", train, after stopping, may proceed with caution, not exceeding twelve miles per hour, under the following conditions:

* * *

(1): On double track.

The maximum authorized speed for the trains involved was 60 miles per hour.

Description of Accident

First 21, a west-bound first-class passenger train, consisted of engine 4425, one mail car, four baggage cars, two U. S. Army hospital cars, seven coaches, one dining car, one Pullman tourist car and two Pullman sleeping cars, in the order named. All cars were of steel construction. This train departed from Ogden, the last open office, at 4:32 a. m., 38 minutes late, and while moving at an estimated speed of 8 miles per hour it was struck by Second 21.

Second 21, a west-bound first-class mail-express-baggage train, consisted of engine 4361, 19 cars and one coach, in the order named. The fourth, eighth and eleventh cars were of steel underframe construction, and the remainder were of all-steel

- 7 -

construction. This train departed from Ogden at 4:50 a. m., 50 minutes late, passed signals 7649 and 7639, which displayed stop, and while moving at an estimated speed of 50 miles per hour it struck First 21 at a point 2,458 feet west of signal 7639.

The thirteenth car of First 21 telescoped the twelfth car about 45 feet, the sixteenth car telescoped the fifteenth car about 40 feet and the engine of Second 21 telescoped the rear car of First 21 about 13 feet. The twelfth, fifteenth and eighteenth cars of First 21 were demolished. The front end of the engine of Second 21 and the first to the eleventh cars, inclusive, were derailed and damaged.

It was foggy at the time of the accident, which occurred about 5:14 a. m.

The flagman of First 21 and the engineer of Second 21 were killed. The fireman and the brakeman of each train, and the flagman of Second 21 were injured.

During the 30-day period immediately preceding the day of the accident, the average daily movement in the territory involved was 39.5 trains.

Discussion

First 21 was preparing to stop in response to signals given by the flagman of a preceding freight train, which had stopped on the westward main track, when the rear end of First 21 was struck by Second 21.

Immediately after the accident a lighted fusee was found on the westward main track about 1,000 feet east of the rear end of First 21 and another in the immediate vicinity of the point of accident, where the flagman of First 21 was found fatally injured. The enginemen of First 21 said that signals 7649 and 7639 displayed stop as their engine was approaching these signals, and in tests after the accident the signals functioned properly.

The fireman of Second 21 said that because of pockets of dense fog he was unable to see the indication displayed by signal 7649, and he so informed the engineer. The fireman understood the engineer to say that this signal was visible to him, but the engineer did not call the indication. When the engine reached a point a short distance east of signal 7639 the fireman observed that this signal displayed stop, and he called the indication to the engineer. At this time the engineer appeared to be normal, but the fireman did not observe any action being taken to reduce the speed, and, because of being engaged in regulating the firing valve and the fuel-oil supply valves, he did not see the lighted red marker lamps of the preceding train or a lighted fusee until immediately prior to the collision. The members of the train crew were in the rear car. They said that the first they knew of anything being wrong was when the speed of the train was materially reduced from a speed of about 65 miles per hour, as a result of a brake application about 12 seconds prior to the collision. Because of the position in which

The engineer was found in the cab, some of the witnesses thought he had become incapacitated prior to the accident. If the engineer became incapacitated prior to the accident, this condition probably occurred after the brake application was made in the immediate vicinity of signal 7639. The verdict of the coroner's jury was to the effect that the engineer came to his death by sudden shock or heart failure just before the occurrence of the impact between the two trains.

The automatic block-signals in use in this territory were not equipped to display approach indications, but the controlling circuits were so arranged that, when a block was occupied, required stopping distance was provided as a result of stop indications being displayed by two signals immediately to the rear of the occupied block. Under the rules, the stop indication displayed by signal 7649 required Second 21 to be stopped as soon as possible after the indication was visible to the engineer, then to proceed at a speed not in excess of 12 miles per hour and to be prepared to stop short of a train, an obstruction and signal 7639, and to proceed beyond this signal in the same manner as it was required to move in advance thereof. After the accident there was no condition found that would prevent proper application of the train brakes. If Second 21 had been operated in accordance with the indications displayed by the signals involved, this accident would not have occurred.

When the engineer of Second 21 failed to control properly the speed of the train beyond signal 7649, the safety of the movement thereafter depended entirely upon necessary action being taken by the fireman, but in this case the fireman could not see this signal and did not realize until the engine was near signal 7639 that there was a train a short distance ahead. If a cab-signal system had been in use, the fireman would have been able to observe all signal indications, and he would have realized that the circumstances required him to take necessary action to control the speed properly. An automatic train-stop or train-control system is designed to enforce the requirements of automatic block-signal indications when the engineer fails because of disability or any other reason to take necessary action to control the speed of the train. If an adequate automatic train-stop or train-control system had been in use in this territory, an automatic application of the brakes sufficient to cause Second 21 to stop short of First 21 would have occurred, and this accident would have been averted.

Cause

It is found that this accident was caused by failure properly to control the speed of the following train in accordance with signal indications.

Dated at Washington, D. C., this seventh day of March, 1945.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.

Rear End Collision of 1st and 2nd #21
Bagley - Utah 12/31-44



Rear End Collision 1st and 2nd #21 at Bagley - Utah
12/31-44



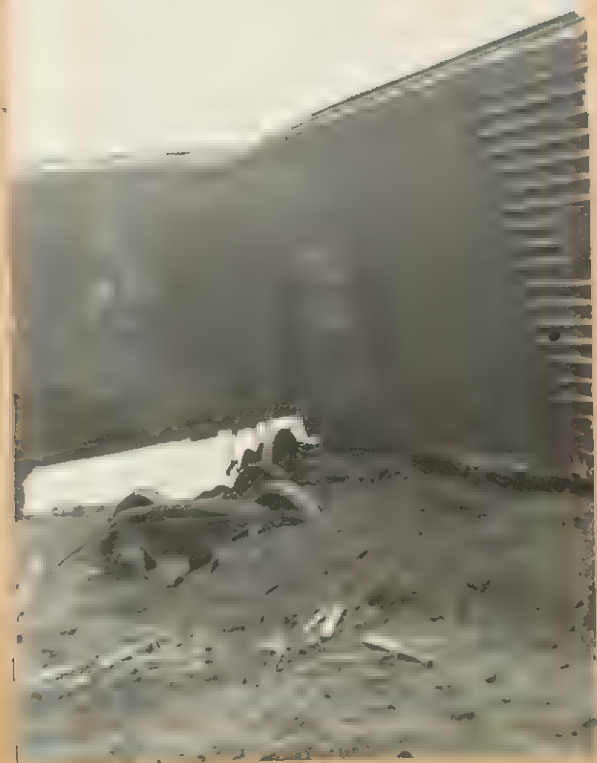
Rear End Collision 1st and 2nd #21
Bagley - Utah 12/31-44



Rear End Collision 1st and 2nd #21
Bagley - Utah 12/31-44



Rear End Collision 1st & 2nd #21
at Bagley, Utah on December 31st 44
resulted in 50 deaths and 81 injuries
and was probably due to death of
engineer on second section due to
heart attack as engine was never shut
off and all indications were that he
was dead at time of accident



Derailment of X West 4132 at Perez
9/16-49 caused by frog breaking
under engine derailing tender of
engine and following 18 cars

Alturas Yard January 1950 T.E.W. in center

Collision of light engine 4104 with string
of cars standing on main line between switches





MUDDY GOING was the order of the day yesterday when workmen started in cleaning up the mess left when this SP freight jumped the tracks after hitting a broken rail.



A BROKEN RAIL was blamed for the wreck shown here when an Alturas-bound SP freight leaped the tracks and spilled 27 cars in the ditch.

Alturas-Bound Freight Hits Broken Rail, Jumps Twenty Seven Cars In Ditch

Twenty-seven cars of an Alturas-bound Southern Pacific freight train were derailed early Sunday morning and ripped up half a mile of right-of-way, seven miles east of Klamath Falls. No one was injured.

Engineer Al Condry reported to the dispatcher's office in Klamath Falls that he believed a broken rail caused the wreck.

Part of the train which was carrying lumber and merchandise had just crossed the O Canal about

a mile from the city airport when the accident occurred. The cars on the opposite side of the canal left the rails. Many of them jack-knifed and others overturned. Some of the cars were split and merchandise was strung along the track.

More than 100 men worked all day Sunday and throughout the night to clear the tracks. Railroad officials reported Monday morning that normal traffic on the line had been resumed.

Modoc Point January 1950



Derailement at Modoc Point in January 1950
derailed engine and twenty one cars and tied
up line for several days as unable to build
shoe-fly

0102 01nt January 1950



Helper engine 4104 collided with cut of cars standing in Alturas Yard
January 25 1950 Engineer B. E. Lee



ESTABLISHED IN 1888
THURSDAY, JANUARY 26, 1950

FREIGHT CARS, ENGINE COLLIDE IN LOCAL YARD

A Southern Pacific Co. locomotive and 12 freight cars were derailed Sunday night in a wreck at the south end of the local railroad yards. The accident occurred when a light engine returning from Lively crashed into a train standing on the main line.

The engineer, B. E. Lee, suffered scalp abrasions, a brain concussion and severe shock. He is receiving treatment at the Modoc General Hospital. Paul Robinson, fireman on the wrecked engine, was treated for shock and released.

Damage to the tracks and equipment mounted to about \$25,000, according to T. L. Williamson, roadmaster. Five cars were demolished and the others badly damaged. All freight cars were empty.

Although the accident happened about 8 p.m. Sunday, the wreckage was not completely cleared away until yesterday. Clearing of the main line was accomplished Monday night.

The cause of the collision has not been determined but a complete investigation will be conducted as soon as Engineer Lee is sufficiently recovered to make a statement, Williamson said.

Engine 4104 after collision. Engineer and fireman both injured and not seriously injured.



On Sunday January 21st 1950 engineer
 E. Lee was returning light from
 making a help up the hill. Approaching
 Alturas he apparently was asleep as ran
 by the switch leading towards roundhouse
 and continued on up main line and struck
 string of cars standing between switches.
 Fireman jumped before they struck these
 cars but Lee was still on engine and
 reversed same trying to stop but unable
 to do so. After engine struck cars it
 was in reverse and backed away from cars
 and ran about a mile before Lee could
 stop same as air brake had been damaged
 in collision and he had to stop engine
 by manipulating reverse lever. When engine
 stopped Lee went back towards tank to shut
 off flow of oil and while he was doing so
 engine started again in forward position
 and as Lee was unable to stop it this time
 he jumped and engine continued on and struck
 cars the second time but this time with
 tremendous force demolishing several cars
 and badly damaging engine.

*Lee who saw engine hit cars both
 times later later to hit cars
 and then remark "That seems
 to be a 'Hell' of a way
 to go a railroad"*





Derailement Big Canyon 11/15-48



*F. E. Kolbough
Supt Salt Lake Division*

Derailement Big Canyon 11/15-48



Derailement Big Canyon Nov 15th 1948



Derailement Big Canyon 11/15/48



Recreation at Big Canyon November 15th 1948
 F.M. Halbach, Port Salt Lake Divn in center of picture



Carl Roy and Chas Niel at Big Canyon Nov 15th 1948

Trestle over Little Baldwin
on Portland Division
collapsed August 6th 1936
while train was crossing
causing several fatalities

Collapse Little Baldwin Br Portland Divn



Little Baldwin collapse



Collapse of Little Baldwin Bridge



Near Coquille - Oregon 8/6-36

Wolf Creek Br Portland Divn





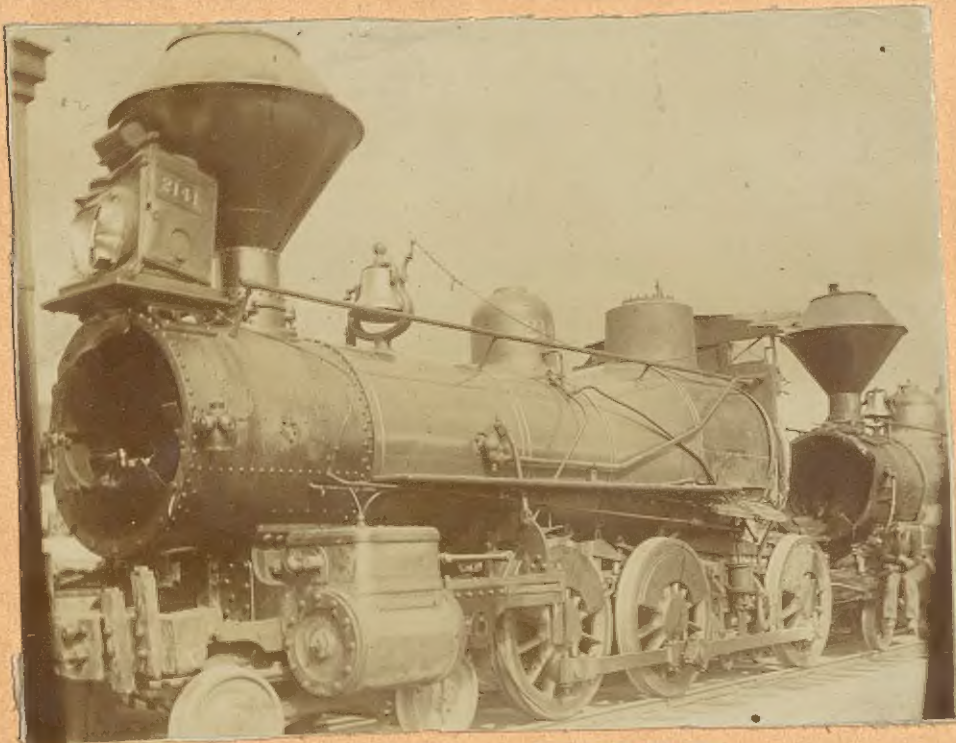




12 Derailed just west of Riddle, Ore
Account driver broke on engine



Rear end collision West end Grants
Pass yard about 1900.
#16 struck rear end 222. Fireman
Berger w s killed



Head-On Collision Gold Hill Oregon
March 25th 1903



S.P. Wreck, Gold Hill, Ore.
Mar. 25, '03.



S.P. Wreck, Gold Hill Ore.
Mar. 25 '03

[216 pp.
514 photos]

